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SEVENTEEN YEARS OF PROGRESS.

THE entrance of THE INDIA RUBBER WORLD, with this issue, upon a new volume, reminds us of the very great advance which has been made, during the seventeen years since our first issue, in the industry which the paper represents. The rubber trade was important, in many respects, previous to the time referred to; notable successes had been won in it, in the way of invention and in the fortunes accumulated by leaders in the industry. But in practically every respect greater progress has been made in these seventeen years than in the whole history of rubber before.

The volume of the business has grown to an extent which makes its former proportions seem small. The number of applications of rubber has increased accordingly, and marked improvements have been made in all the lines of rubber goods that were staple a score of years ago. The period under review has been one of great industrial and commercial development such as the world never knew before, but no branch has made more real advancement than has been shown by the better rubber concerns.

To begin with the crude rubber interest, the trade has been very greatly systematized within seventeen years. Manáos was hardly a factor in the trade then, though now ahead of Pará in the amount of rubber handled. Antwerp was handling but a few tons of rubber in a year, and nobody knew of the Congo as a rubber producing country. The rubber planting interest had not been established, beyond the work of a few scientific experiments.

In the rubber manufacture, it is true, most lines now important in the trade had an existence, but seventeen years have witnessed steady progress in the way of improved methods and improved products. But the rubber tire scarcely existed; the automobile tire now standard the world over had not been thought of; even the pneumatic bicycle tire was in embryo when THE INDIA RUBBER WORLD first appeared.

This has been an era of industrial combinations and concentration, and here, too, the rubber industry has kept pace with general progress. There was hardly a rubber manufacturing concern seventeen years ago with a capital stated as high as $1,000,000, while now there must be scores of them, not to mention such aggregations of capital in the business as that of the United States Rubber Co.

The manufacture of rubber goods has been carried into a number of countries where before it had no footing—as in Japan, Australia, Switzerland, and Portugal. And the use of rubber goods has become general in many regions where they were scarcely known before. Special mention must be made of the development of the rubber manufacture in Germany, and of the export of rubber goods from that country—facts which figure among the notable in the history of the industry in any country.

It has been the pleasant task of THE INDIA RUBBER WORLD, month after month, to record all these and many other elements of growth and progress in the trade. It is still remembered in the office that when the publication of the paper was first proposed, there were friends of the Editor who felt it to be a mistake, because they thought he could never find matter enough in relation to rubber to fill its pages. On the other hand, it has been a constant problem how to get within the limits of the paper as full a review as was desirable of the growth of the trade.

It may interest some readers to have the fact recalled that when the first INDIA RUBBER WORLD was printed, raw rubber was "high", having just advanced above 60 cents a pound for fine Pará. A price so low as 60 cents has never again been recorded in our pages.

THE NEW STUDY OF RUBBER.

NO fact in connection with rubber culture is more fruitful of promise than the disposition of students of the scientific production of rubber, in Ceylon and elsewhere, to learn the various uses to which rubber is put, and the different processes of manufacture, with a view to best adapting the raw material to its final disposal. This seems perfectly logical, and yet it is not so very many years since even manufacturers regarded rubber as rubber, just as lead is simply lead.

But the requirements of the rubber factory are numerous and widely different, and the most successful management is that which best selects the grade or quality of rubber suited to each particular use. If this is true, it is none the less desirable that the producers of rubber should have an intelligent idea of what is requisite in high class material, to guide them in supplying the wants of the factory.

If a difference in methods of the coagulation or drying of rubber, or its packing for shipment, or conditions of storage, renders certain lots of rubber better or worse than certain others, it is not intelligent plantation management to ignore the various details involved. Hence we were pleased recently when Mr. Burgess, a government expert in rubber in the Malay States, while on a visit to Europe, devoted so much of his time to discussing with the manufacturers of rubber goods the qualities which they desired in their raw material for this, that, and the other purpose. And Mr. Herbert Wright, whose book on "Para Rubber" is reviewed elsewhere in this issue, devotes serious attention to similar questions.

If rubber is required for waterproofing or insulation or motor tires or solution—what can the plantation manager do to give the manufacturer the raw material best suited to his needs? But this study must not be left to the rubber producer alone.

It is equally encouraging to note the increasing tendency among experts in rubber factories to study their raw materials, not merely from the time of their arrival in the stock room, but from the moment of the extraction of latex from the rubber tree. There was a time, of course, when the rubber manufacturer or his superintendent could not go further back than to the stock room in dealing with the nature of different rubber sorts.

But now that so much rubber is being produced under conditions which permit of careful scientific observation, we may look forward to the time when the rubber manufacturer will insist upon a definite treatment of the latex which enters into the rubber which he is to use, just as certain consumers of rubber goods now order upon specifications, rigid compliance with which they insist upon. We have in mind at least one successful manufacturer, on a large scale, who has given careful study to many details in connection with the preparation of crude rubber who feels that he has derived great benefit therefrom, and his example is worthy of a wide following.

We do not doubt that a great advance in the rubber industry would follow the organization of a Rubber Congress, for the periodical discussion of the proper preparation of rubber, to be participated in by producers and consumers, to the end that their interests in common be discovered and defined.

MR. ROOT'S SOUTHERN VISIT.

SOUTH America is beginning to figure very much more prominently on the world's stage. Some person of distinction has said lately that it is to be "South America's century," and the prediction seems likely to be verified, just as the century last past was distinguished by the great development of our own United States. While so many parts of the world are becoming overcrowded, half the Western hemisphere remains sparsely settled and almost non productive—a condition which the world cannot permit long to continue.

Discovered by the same Columbus, North America has become the home of vastly more people than South America and a much more important industrial center, but whatever may have been the predominating causes, this wide difference is bound to disappear, as the whole world tends more and more to approach a common standard.

The recent visit of Mr. Secretary Root, of the Washington cabinet, to the various South American capitals, has been the means of bringing out expressions of mutual sentiments of interest and esteem between Latin America and the United States the sincerity of which cannot be doubted. While his errand was by no means commercial in its nature, whatever tends to bind two or more countries together in interest promotes commercial intercourse among them.

Not that the visit of a single high official will necessarily be followed by larger trade relations between North and South America, but the conditions which called for such a visit, and which it has been the means of revealing to the world, point to new opportunities for the

manufacturers and exporters of the United States which, we feel certain, will be turned to good account.

The United States long have been large buyers of certain South American products, such as rubber, as a matter of necessity, but South America has bought European manufactures. There are many goods made here which the Latin Americans can use to advantage on a larger scale than in the past, and with the new era of South American development now opening we shall expect to see Europe's predominance in that trade declining.

SYNTHETIC RUBBER ONE YEAR HENCE?

PROFESSOR WYNDHAM DUNSTAN, whose interesting paper read before the British Association appears on another page, is willing to go on record with the statement that synthetic rubber will be an accomplished fact—some time. Some of his readers understood him to predict this important discovery within a year. The time limit which he really made, however, was before the Association met again at York. Suppose it should never again meet in York? Anyway, his statement would have weight were it not for the fact that he follows it by prophesying that Mr. Kelway Bamber's discovery that the latex of India-rubber can be cured by chloride of sulphur will be of commercial value.

To begin with, it isn't the wish of the writer in any way to minimize the excellent work that the gentlemen in the government service in Ceylon have done in connection with India-rubber. That it would be a commercial possibility, however, to take the latex of any rubber tree and make it up into marketable goods is not to be thought of. It should be appreciated that rubber to be of any value to the world at large must ninety-nine times out of a hundred be compounded, and not only compounded but made up into certain physical shapes for specific purposes. Any one familiar with rubber manufacture can readily see that it would be impossible, for example, to make an elevator belt with the rubber compounded to give the best wearing surface and with a strong friction by the use of latex in which was a modicum of chloride of sulphur, instead of a doughy compound run into sheets and shaped by the belt press. Indeed, how in the world could one get any sort of compounds into latex and chloride of sulphur, and where in the world would reclaimed rubber and other assistants that are absolutely necessary to-day be added?

Mr. Bamber's experiment is exceedingly interesting but not practical, and Professor Dunstan's estimate of its value is not sound. Is his estimate of the possibility of a commercial production of synthetic rubber within one year—or twenty-five years—any sounder?

THE FACT THAT GOVERNMENT OWNERSHIP of the railways is being strongly urged by Mr. Bryan and his political supporters does not mean, of course, that Uncle Sam is going into the railway business right away. But if he were it would be a matter of considerable interest to the rubber manufacturers, particularly on account of the large volume of rubber supplies needed every year by the railway companies. Considering the amount of red tape, time, and annoyance involved in selling the government a few pounds of elastic bands or rubber erasers nowadays, the prospect would not be a pleasing one of having to trade with official purchasing agents in dealing with millions of feet of air brake hose, for example.

DEATH OF GEORGE F. HODGMAN.

As we go to press comes from London the sad news of the death of Mr. George F. Hodgman, of the Hodgman Rubber Co., New York. He left two months ago with his wife for a tour of Europe. At that time he was in the best of health. Ten days ago his son Theodore was summoned to England, arriving only a few days before the suddenly developed heart trouble terminated fatally. The passing of one who stood for so much in the way of fair dealing, high courage, and staunch friendliness, will shock and sadden the whole trade.

KING LEOPOLD'S RUBBER REALM.

WHATEVER may be the outcome of the rumored negotiations for the acquiring by Americans of an interest in the Congo rubber trading companies, the rumors at least afford an occasion for reviewing an interesting branch of the crude rubber situation. No other country, considered as a source of crude rubber, has ever received so much attention at the hands of the general public as the Congo Free State. In the first place, this was until lately an unknown country. It is not a score of years since Stanley, just become famous on account of his daring invasion of "Darkest Africa," announced to the world his discovery of untold wealth of rubber along the great Congo and its tributaries.

Commercial companies were speedily formed to exploit the resources of that region, rubber always being considered first, because the rubber was ready in the forest for any comer, without waste of time for planting, building, or other development work. Returns were speedy, and at such a liberal rate as to suggest magic. Few white people had ever seen the Congo country, so that it remained a land of mystery, and all the more mysterious because of the great profits of the trading companies operating there, whereas raw rubber had never been associated in the public mind with getting rich quick. Besides, the Congo Free State had as its patron a European monarch whose name was on everybody's tongue, and who was generally supposed to be getting a good share of the trading profits referred to. The whole civilized world has been called into the so called Congo controversy, in relation to the treatment of the rubber gatherers, whether inspired by pure philanthropy or commercial jealousy—a question not to be discussed here.

The fact is that there is yet a vast amount of rubber in the extensive area of the Congo Free State, despite what has been exported. It is mainly upon the receipts from the Congo that the rubber trading at Antwerp has been built up, within a few years, from nothing to 5000 or 6000 tons a year. The figures below show the amounts of rubber exported year by year from the Free State proper:

	Pounds.		Pounds.
1887	66,110	1897	3 657,236
1888	163,447	1898	4,649.623
1889	288,448	1899	8,242,935
1890	272.066	1900	11,696,375
1891	179,736	1901	13 228,013
1892	343.945	1902	11,770,994
1893	530,537	1903	11,396,882
1894	744,022	1904	10,628,066
1895	1,268,337	1905	10,695,887
1896	2,898,161		

While some of the areas first exploited for rubber have now become less productive than at the beginning, new fields have been entered, and there remains no little territory which has not been worked at all. Moreover, in places where originally only rubber vines or creepers were known, and when they seemed about exhausted, trees yielding rubber of good quality have been discovered. Altogether, the rate of production is being maintained at such a rate that, during the first seven months of 1906, more rubber from the Congo was received at Antwerp than in the same period in either of the last two years preceding. And a study of the financial markets of Brussels and Antwerp shows a range of prices for shares in the Congo rubber trading companies that indicates a continued high degree of public confidence in their future.

Practically the first official act of the Congo Free State government as now organized, was to declare all unoccupied lands to form a domain of the crown, all products of these lands likewise being reserved to the state. Hence the basis for a system of concessions to trading companies, protected in their monopolies by all the power of the government. Many such companies have existed, and many still exist, though there has been a series of reorganizations tending to concentration of trading interests. Particularly has there been a tendency to admit the participation of the state in the profits of the *concessionaire* companies. In a number of cases the state holds half the shares issued by the companies, it being understood that there has been no capital supplied by the state. The companies acquire trading rights, under governmental protection, and pay half the net profits for their privileges. The Société ABIR (Anglo-Belgian India Rubber Co), often mentioned as one of the more prominent of these companies, and one of the first in the field, has been noted for the extent of its profits and the prices paid for its shares. More recently the Syndicat (or Compagnie) du Kasai has figured largely in the Congo trade, being the result of the merger of fourteen rubber *concessionaire* companies in the Kasai valley. Half the shares in this combination are held by the government. The Kasai company shipped 815 tons of rubber to Antwerp in 1903; 911 tons in 1904; and 1210 tons in 1905. Their profits in 1905 amounted to nearly $1,500,000, and it is expected that at the meeting this month a dividend will be declared bringing the total for the last business year to 1500 francs per share—three times the nominal value. These shares have been quoted recently at 16,250 francs.

It will be seen from the above that for any outsider to become interested in the Congo rubber situation in a large way, negotiations would have to be entered into with the government. Also, that while the present rate of financial returns is continued, the Congo rubber interests can not be bought for a song.

The companies named below do not comprise all which hold or have held concessions on the Congo, but only such as figure among the shippers of rubber to Antwerp during the past year:

Compagnie du Kasai:
- S. A. Belge pour le Commerce du Haut-Congo.
- Neuwe Handels Vennootschap.
- Société des Produits Végétaux du Haut-Kasai.
- Cie. Anversoise des Plantations du Lubefu.
- Plantations Lacourt.
- Société "La Belgika".
- Comptoir Congolais "Velde".
- Société "La Kassaienne".
- Société Anonyme "La Djuma".
- L'Est du Kwango. S. A.
- Société "La Loanje".
- Central Africaine.
- Cie. des Magasins Généraux du Congo.

Société Anonyme Trafic Congolias.
Société Générale Africaine.
Société A B I R.
Société Anversoise du Commerce au Congo.
Comité Spécial Katanga.
Cie. du Chemin de fer des Grand Lacs.
Société Anonyme Isanghi.
Société Anonyme Belge Commerce du Haut-Congo.
Compagnie du Lomami.
Société Anonyme La Belgica.
Société Anonyme l'Ikelemba.
Société Equatoriale Congolaise.
Société Anonyme La Lulonga.
Camille D 'Heygere.
Comptoir Commercial Congolais.
Cie. Bruxelloise pr Commerce au Congo.
Compagnie Andrea.

Another and important feature of the Congo rubber trade is the collection of taxes by the state through the enforced labor of the natives. In other words, taxes are paid "in kind"—in rubber, principally instead of cash. The yearly budget of the Congo Free State includes, among estimated receipts, so many millions of francs of such taxes. How many pounds of rubber are required to discharge this obligation is nowhere recorded, but the proceeds of the tax collection are included in the arrivals at Antwerp for account of the Société Générale Africaine, which are referred to also as for the *Domaine privé*. These arrivals amount to more than 2000 tons annually, and doubtless the business involved would not be turned over to foreigners for a small consideration. Any way, how would the purchaser manage to keep up the collection of rubber?

SOME WANTS OF THE TRADE.

[345] FROM an Illinois hardware company: "We are in the automobile business and are anxious to get hold of some kind of vulcanizer for repairing automobile tires. Can you give us the address of any party making such an apparatus?"

[346] A well known mechanical rubber goods house would like to communicate with the manufacturers of a waterproof compound that can be used for saturating cotton woven covering to be used on the outside of steam hose, a decided improvement over the red paint and die covering now in use.

[347] From Quebec: "Would you be so kind as to put me in touch with some of our United States friends manufacturing combination fountain and hot water bags, also uterine syringes. I would buy in hundred, or more, lots, on manufacturer's own terms. I already have the Canadian manufacturers' figures."

INVENTORS AND THEIR REWARDS.

THE rewards of invention are commonly supposed to be liberal. Better evidence of this belief is not needed than the voluminous issues every year from the patent offices of the United States and a dozen other countries. There are yet people who suppose the ownership of a patent for a new invention to be a clear title to a fortune; it is only necessary to obtain a patent, and the rest will happen as a matter of course. The great number of failures seems in no way to deter the army of inventors, which seems constantly to increase.

The profits made from very many patented articles have been enormous, it is true, and the number of profitable "new" inventions was never so great in any period in the past as now. But profits under the protection of patents and financial rewards for the patentee himself are not necessarily the same thing. Hence the conviction in some minds that the patentee of a useful article does not always get a "square deal"; in other words, that governments fail to do all that they should for the interests of inventors.

There always have been people who failed to make the most of their opportunities, and inventors are, after all, made of about the same sort of stuff as other people. One inventor accepts the first price offered for an untried patent and is content until, in the unforeseen progress of the world, the invention becomes useful and the purchaser is found to be making a fortune. The first American patent for a rubber beer bottle stopple was bought on a venture for $1000 by a man who is reported to have derived $5,000,000 or more in royalties from it.

The fact is that the issue of a patent is usually so far in advance of the development of the art to which it relates that a fair opportunity to test the merit of the invention has not been afforded. The inventor, therefore, has no means of determining the value of his discovery. Thomas A. Edison accepted $40,000, freely offered for his first patent, when he doubtless would have been glad to accept $2000 for it.

And not every inventor is enough of a business man to make the most of the rewards that do come to him. The inventor, in a measure, is apt to lack in business "sense." He makes a mechanical improvement, for example, which some one else is quick to see merit in, and prepared promptly to place before the world. It is made and marketed as if it represented finality in perfection of the branch to which it relates. But if its exploitation were left to the inventor, he might never be satisfied with his product. Every time he turned out a thousand of his device or apparatus he would be tempted to experiment in the direction of an improvement—meaning new patents, new models, prospective greater fortunes—so that the article would never be completed, and a large business never developed.

It is not strange, therefore, that the actual inventor and patentee of many an important principle or device has failed to pocket a large share of the profits derived from its sale. But there is another side of the question. The nominal inventor and patentee, no matter how much merit should be ascribed to him, in countless instances has only contributed to the world a crude idea, which has been made of really great benefit to man, by the combined efforts and skill of numerous other workers, who for the most part never share the credit for the invention.

Nelson Goodyear (a younger brother of Charles) obtained a patent for the compound known as hard rubber—something before not known to the world, and for awhile his estate collected royalties from licensees under the patent. But within a few years improvements were made in the art, so that before the expiration of the Goodyear patent the original process had become obsolete. To-day his patent represents no more in the hard rubber art than the first suggestion of the possibility of producing a material that has come to be of great utility. First and last fortunes have been made under patents for hard rubber in which Nelson Goodyear's estate never shared, but only because his initial invention was supplemented in an important way by so many later investigators and experimenters. Possibly if his patent specification had been written on broader lines, the reward for Goodyear would have been more liberal, but no blame can attach to the government in this regard.

To-day the rubber tire represents the field in rubber invention which is most prolific in patents. It certainly is the rubber branch which appeals most strongly to public interest. Enormous sums have been paid for rubber tire patents or have been collected in royalties under such patents. But no patentee of a rubber tire has grown wealthy in consequence. The fact is that out of thousands of tire patents, the principle involved in a score or less has proved of commanding importance, and who ever happened to own the patents at the proper time to share in the development of the trade has profited financially—some of them very largely. But this does not imply any lack of justice, on the part of governments or tire makers, to the various inventors involved.

Look at Thomson, the English inventor, who brought out the first pneumatic rubber tire, more than 60 years ago. He was so far ahead of his time that he and his patent were actually forgotten before a commercial demand for pneumatic tires existed. When the time was ripe for such tires, and inventors began to recognize the demand, their application for patents in many cases were denied on the ground of anticipation by Thomson. Thomson himself never profited a penny by his invention. Millions of tires based upon the Thomson principle have yielded profits to somebody. Of course there have been later inventors who have profited from patents on improvements on the crude fastening or retaining devices suggested by Thomson.

As for Dunlop, who had never heard of Thomson when he took out a patent, his tire, though it was the original basis of a great tire company, was never really subject matter for a valid patent. And Dunlop's own tire soon dropped out of sight. The tire which his company really founded the business upon was made under the Welch patent, covering the principle of attachment by means of two inextensible wires, engaging a suitably grooved rim, but not necessarily for a pneumatic tire. Not even Welch had in mind the modern pneumatic tire. His specification did mention, in one of 18 claims, the applicability of his device to a tire made on Thomson's principle, and this one claim eventually survived and became the basis of the Dunlop monopoly. But

did this make Welch the inventor of the perfected tire marketed by the Dunlop organization?

So with the "clincher" tire. Neither the American nor the British patentee of this type of tire specified any such tire as is actually made to-day by Goodrich, Michelin, or the British, German, and Italian manufacturers. Patents were taken out and sustained in some countries and denied in other countries. The "clincher" tire has become standardized throughout the world, and is now the leading type in pneumatics for motor cars. But no one man—no two men—can be named as the inventors.

Certain tire inventors have obtained handsome rewards under their patents, recognized in some countries which are not to be begrudged them. But the real development has been the work of scores, hundreds, or thousands of persons, in rubber factories, automobile factories, among automobilists, and possibly elsewhere—the result of endless painstaking experimenting, with a view to overcoming defects and weaknesses and to making tires equal to new requirements, unforeseen by the original inventors.

This is how large and far reaching inventions are developed in more cases than the public realizes. Inventors of course are entitled to rewards, but hardly to the whole profit from developments in which they may be only pioneers, and perhaps without a conception of the possibilities involved.

C. D. FROST.

HOW MANY AUTOMOBILES ARE THERE?

THE number of automobiles in use in the United States it is practically impossible to determine. Some figures of interest are obtainable from the states in which automobiles are required by law to be registered, but they are not conclusive. Up to July 1 automobiles had been registered in twenty-four states (having registration laws) as follows, except that in some cases the date of the report was later in the month:

California (Jul. 17)	6,787	New York	30,829
Connecticut	3,320	Oregon (Jul. 23)	310
Delaware (Jul. 19)	296	Pennsylvania (Jul. 19)	11,679
Florida	232	Rhode Island	1,819
Indiana	3 325	South Dakota (Jul 21)	510
Iowa	2 214	Tennessee	628
Maine (Jul. 19)	1,181	Vermont	727
Maryland (Jul. 19)	2 240	Virginia	198
Massachusetts	15,897	Washington (Jul. 23)	300
Michigan (Jul. 19)	4,126	West Virginia	162
Nebraska	812	Wisconsin (Jul. 19)	2,270
New Hampshire (Jul. 19)	952		
New Jersey	16,500	Total	107,314

This list does not embrace two states in which a great many automobiles are owned—Ohio and Illinois. On August 2 the local registration in the city of Chicago, Illinois, amounted to about 5000. Another point is that so many automobiles are registered in more than one state. This is particularly true of automobiles registered both in New York and in the adjacent states. As a rule the officials make no effort to estimate the extent of duplication. But the secretary of the Massachusetts highway commission makes an interesting statement to THE INDIA RUBBER WORLD, as follows:

Under the law, when ownership of a motor vehicle is transferred its registration expires. Registration by the new owner or person in control of the vehicle then becomes necessary. Many machines have therefore been registered more than once The commission has received approximately 3500 or 4000 notices of transfer of ownership. There have probably been many more transfers of which the commission have not been notified. Then too, hundreds of automobiles from other states have been registered by their owners while touring in Massachusetts. It will be seen that the number given above, 15.897, does not represent the number of automobiles now in Massachusetts. There may be 8000 or 9000, but it is impossible to correctly estimate the number.

It would not do, however, to cut in half the whole registration of the 24 states named to get at the number of cars owned in them. In fact, in a number of states the registration figures are given as showing the exact number of cars on the date of report. Making a liberal deduction for duplicated registration and for machines which have gone out of use, and adding to the result a number of cars for the states not on the list, commensurate with their population and wealth, it appears to the writer not impossible that there are 100,000 automobiles in the country. But even reducing this number by 25 per cent.—the admitted annual rate of automobile production in the United States to-day—the number would very soon reach 100,000.

* * *

THE "Daily Mail Year Book" for 1906, published in London, states that the approximate number of motor cars in use in the United Kingdom in 1905 was 31,129, as against 18,340 in 1904, showing an increase during the year of 12,789. These returns are made up to midsummer of each year. The approximate number of motor cycles in use as given is somewhat larger—34,706 in 1905 and 21,521 in 1904.

The British royal commission on motor cars has made a report, showing the following number of vehicles to have been under license in the United Kingdom at the dates given:

	Motor Cycles.	Other Motor Cars
December 31, 1904	27,348	24 201
September 30, 1905	37 665	36,373
May 1, 1906	42,438	44,098

* * *

THE "Annuaire Général de l' Automobile" for 1905, published in Paris, contains a list of the names and addresses of automobile owners, without other details, except a statement to the effect that while an effort has been made to render the list as complete as possible, it is not offered as a full list, since the authorities are not obliged to supply the names of those registering automobiles. The number of names appearing in this compilation is as follows:

Paris	4,318
Seine	801
Departments	12.626
Total	17,745

A later publication, by a French parliamentary commission, gives 21,524 as the number of automobiles in the country at the end of 1905.

* * *

THE "Annuario dell' Automobilismo" for 1906 of the Touring Club of Italy, published at Milan, contains a list of the automobile owners of Italy on December 31, 1905, followed by a statistical table showing the number of automobiles in use at that date, which latter is summarized here.

	Private.	Public.	Commercial.	Total.
Northern Italy	1502	16	3	1521
Central Italy	469	2	—	471
Southern Italy	102	26	—	128
Insular Italy	53	1	—	54
Total	2126	45	3	2174

RUBBER DISCUSSED AT THE BRITISH ASSOCIATION.

MUCH interest has been excited by the presidential address of Professor Wyndham Dunstan, before the Chemistry section of the British Association—the most notable scientific institution in the United Kingdom—at the recent annual meeting at York. The newspapers emphasized the sentence: "Chemists may, however, confidently predict that before the British Association again meets at York the synthetic production of rubber will be a fully accomplished fact." It should be recognized that this statement was by no means the keynote of Professor Dunstan's address, as president of the Chemistry section of the association. His topic was: "Some Imperial Aspects of Applied Chemistry."

The speaker dwelt on "the importance of our science [chemistry] in one or other of its many relations to national and Imperial affairs, and to invite your attention to the intimate connection of our science with the problems that await solution in connection with the utilization of the raw materials and economic products of our colonies, and especially those of our tropical possessions. There is a pressing need that the Imperial government should recognize much more fully than it has hitherto done, and at least as fully as foreign governments are already doing, the claims of scientific investigation to be regarded as the pioneer instrument of this work, and as the essential first step in the material and commercial development of our possessions. Although my remarks will be chiefly directed to the importance of chemistry in this connection, my plea will be more general; inasmuch as in determining the value of the mineral resources of a country, other specialists are also concerned, and the assistance of the geologist, the mineralogist, and eventually of the metallurgist may be required. Similarly with vegetable and agricultural products, the services of the economic botanist and of the entomologist will be needed."

The importance of agriculture in the vast colonial resources of the empire was dwelt upon, in the course of Professor Dunstan's address, during which he said:

TROPICAL AGRICULTURE.

A CHEMIST working in the spirit of an investigator will be able to render special services to the cause of tropical agriculture, and it is, therefore, of importance that in future the men appointed to these posts should be chosen as far as possible on account of the promise they have shown as investigators. The determination of the constituents of little-known indigenous plants as the first step towards ascertaining their economic value is another department of work which cannot be carried out without a chemist, and the same applies to the examination of poisonous plants, and also of minerals, in addition to the determination of the composition of foods and feeding stuffs; as well as the investigation of the nature and capabilities of the soil by actual experiment, for which well-organized experimental stations are a necessary part of every agricultural department. Another duty is to convey to the natives, chiefly by means of demonstration, the results of this experimental work, so that they may be persuaded to make it a part of their agricultural practice. This applies especially to tropical agriculture.

PLANTING OF PARA.

UNTIL recently the supply of rubber came chiefly from two sources—the forests of Brazil, which contain the tree known as *Hevea brasiliensis*, furnishing the Pará rubber of commerce which commands the highest price, and the forests of Africa, where climbing plants, generally of the *Landolphia* class, also furnish rubber. The increased demand for Caoutchouc has led to the extensive planting of the Pará rubber tree, especially in Ceylon and in the Federated Malay States. Systematic cultivation and improved methods of preparation are responsible for the fact that the product of the cultivated tree, which begins to furnish satisfactory rubber when six or seven years old, is now commanding a higher price than the product of the wild tree in Brazil. It is estimated that within the next seven years the exports of cultivated India-rubber from Ceylon and the Federated Malay States will reach between 10 and 15 million pounds annually, and that after 15 years they may exceed the exports of the so called wild rubber from Brazil. The services which chemistry can render to the elucidation of the problems of rubber production and utilization are very numerous. As is well known, the latex is a watery fluid resembling milk in appearance, which contains the rubber, or, as I think more probable, the immediate precursor of rubber, together with proteids, and other minor constituents. The constituent furnishing rubber is in suspension, and rises like cream when the latex is at rest. On the addition of an acid, or sometimes of alkali, or even on mere exposure, coagulation takes place and the rubber separates as a solid, the other constituents for the most part remaining dissolved in the aqueous liquid or "serum." There are peculiarities connected with the coagulation of the latex which are opposed to the view that it is wholly explained by the coagulation of the associated proteids.

INVESTIGATION OF THE LATEX.

THE experimental investigation of the question on the chemical side is beset with many difficulties, which are increased if access cannot be had to fresh latex. A number of experiments were made at the Imperial Institute with latex forwarded from India, which led to the conclusion that "coagulation" can take place after removal of the proteids, and that in all probability it is the result of the polymerization of a liquid which is held in suspension in the latex and on polymerization changes into the solid colloid which we know as Caoutchouc. For the chemist the important question remains as to the nature of this liquid from which Caoutchouc is formed. Chemistry in this case holds the premier position in reference to this subject, and to a large extent may be said to hold the key to the future of the rubber industry in all its phases. The discovery of better methods of coagulation, preparation, and purification will be effected through chemical investigation, as will also the determination of the manner of utilizing the various other plants which furnish rubber like latices. That the physical properties of raw rubber, on which its technical value depends, are to be correlated with the chemical composition of the material there can be no doubt. Then the present methods of chemical analysis of raw rubber require amelioration.

Although the finest Caoutchouc for technical purposes is only yielded by some half-dozen plants, under whose names these varieties of Caoutchouc pass, there can scarcely be a doubt that the elastic substance in each case possesses a very similar, if not identical, chemical structure. Nearly all the latices and similar fluids furnished by plants contain more or less Caoutchouc. Even opium contains Caoutchouc.

MANUFACTURE OF SYNTHETIC RUBBER.

THE production of Caoutchouc by chemical means has, indeed, virtually been accomplished in its formation from isoprene. The exact nature of this change has still to be determined. When this has been done it will only remain to cheapen the cost of production to make the manufacture of synthetic rubber a purely practical problem. I should be the last to discourage the great extension of rubber planting which is now taking place. It is warranted by the present demand for the material. It has also to be remembered that the actual cost of producing raw rubber, which is at present about 1 shilling per pound, will probably be reduced, and the market price of rubber may eventually be so considerably lowered that, as with quinine, the synthetic production could not be profitably carried on. That is a question which involves many factors at present unknown, and only time can decide. Chemists may, however, confidently predict that before the British Association again meets at York* the synthetic production of rubber will be a fully accomplished fact.

As I have said, our science is concerned with nearly every problem connected with the great rubber industry, and in concluding these few remarks I may allude to the production of vulcanized rubber, inasmuch as recent experiments of Mr. Bamber in Ceylon appear to show that vulcanization may be accomplished by acting on the uncoagulated latex with chloride of sulphur. If this proves to be practicable, it may mean the transference to the tropics of the subsidiary industry of vulcanization, which is at present carried on in Europe. The chemistry of rubber is to receive special attention of the section at the York meeting. The chemical investigation of raw materials often raises, unexpectedly, problems of great scientific interest. The examination at the Imperial Institute of the seeds of the Pará rubber tree (*Hevea brasiliensis*) has shown that they contain what proves to be a valuable drying oil, and in the course of the investigation it was ascertained that there is also present in the seeds and in other oil seeds an enzyme capable of splitting the oil by hydrolysis into glycerine and the free fatty acid.

* * *

A LENGTHY and most interesting report on the Chemistry of Rubber, read by Mr. Pickles before the Chemistry section of the Association, will receive attention in these pages in a later issue.

ELASTIC MONEY WANTED.

TO THE EDITOR OF THE INDIA RUBBER WORLD: The pages of your journal contain advertisements of firms who make rubber that will stretch from 2 to 10 inches. Do you know of any company making $1 bills of rubber that will stretch to $10? WALTER A. CRAFT.

Brooklyn, New York, August 23, 1906.

* The last meeting of the Association at York was twenty-five years ago. The next is not likely to occur for twenty-five years more.

BRITISH RUBBER NOTES.

THE scheme for the reconstruction of The Dunlop Pneumatic Tyre Co., Limited, referred to more than once in THE INDIA RUBBER WORLD, having been heard by Mr. Justice Joyce, in the chancery court on August 1, has since been sanctioned and will be put into effect. The object is to reduce the nominal capitalization by reducing the item of "good will" in the assets, in view of the expiration of the patents upon which the company relied for many years to maintain their monopoly. All opposition to the proposals, on the part of shareholders, had practically ceased to be heard, and the management is harmonious.

=Mr. Charles Coops has been appointed manager of the Macintosh Tyre Co., Limited, mentioned in the July INDIA RUBBER WORLD (page 369) as having been formed to handle the tire trade of Charles Macintosh & Co. Limited (Manchester). Mr. Coops was originally in the employ of the Messrs. Macintosh, and later was, for a number of years, managing director of the Eccles Rubber and Cycle Co., Limited.

=The accounts of The Leyland and Birmingham Rubber Co., Limited, for the year ended June 30, 1906, show a trading profit of £23,591 19*s.* 6*d.* The dividends for the year amount to 6¼ per cent.

=Ruberoid Co., Limited, has been registered in London to acquire goods manufactured by The Standard Paint Co. (New York) and Ruberoid Gesellschaft m. b. H. (Hamburg) and to sell the same in Great Britain or elsewhere, and to manufacture roofing, insulating, and other materials. The directorate includes R. L. Shainwald, president of the New York company (who, or his successor, shall be chairman), and G. A. Meyer, managing director of Ruberoid G. m. b. H. The capital is £6000 (=$29,199).

=Turners & Manville, Limited, has been registered, with £50,000 capital, to acquire the business in asbestos goods carried on by the London branch of the H. W. Johns-Manville Co., and the British Johns-Manville Co., Limited. The directorate includes T. F. Manville, of New York (of the H. W. Johns-Manville Co.), and S. Turner, of Rochdale, England (of Turner Brothers, Limited).

=The India-Rubber Manufacturers' Association, of Great Britain, having addressed the governor of Ceylon on the subject of the desirability of rubber planters registering trademarks for their respective rubber brands, one of the newspapers in Ceylon expresses the opinion that such trademarks do not appear necessary. Estates which send their rubber direct to London usually stamp the sheets with the estate name while the rubber is drying. Many planters, however, sell locally, and Colombo shippers grading their rubber do not keep that from different estates separate. Still the matter is of some interest as indicating the extent to which manufacturers are taking an interest in whatever pertains to the rubber planting business.

=The Gorton Rubber Co., Limited, of Manchester, invited subscriptions for the balance £4770 of their 6 per cent. cumulative preference shares in order to provide further working capital. The concern of course is only a small one as rubber works go, but it has made steady progress in late years and is by no means in the moribund condition predicted of it at the decease of Mr. Harry Heaton, Jr., who was mainly instrumental in breathing life into its dry bones.

PROGRESS OF RUBBER CULTURE.

CENSUS OF RUBBER PLANTING IN CEYLON.

THE proprietors of the *Ceylon Observer*, having finished the compilation of their "Ceylon Handbook and Directory" for 1906–07, give out the figures relative to the great progress which has been made in rubber planting in that colony, the acreage now under rubber, or to be planted in the summer just closed, figuring at 104,000. As recently as May, 1898, rubber planting in Ceylon was represented by an estimate of 750 acres. By May, 1901, the *Ceylon Observer* estimated 2500 acres, while the return to the middle of 1904 gave an equivalent of 11,000 acres. Planting has gone on very rapidly within the past two years, and especially the past twelve months, during which nearly 64,000 acres appear to have been added to the rubber area of the colony.

These compilations have always been made with great care, the "Handbook" giving in detail the names and location of plantation owners, with the acreage of each, thus making their figures capable of verification. Since these figures were made public in Ceylon, it has been suggested that the rubber not included on the systematically laid out plantations—in gardens and small farms, and particularly on native estates, would amount to 15,000 to 20,000 acres more than the first published figures, which relate only to the estates of Englishmen.

RUBBER PLANTING IN MALAYA

THE first annual report of the department of agriculture of the Federated Malay States, by Mr. J. B. Carruthers, states that the number of acres thus far alienated for rubber culture is about 100,000 acres, of which 38,000 acres are already planted (mainly with *Hevea*), as follows:

	Acres.		Acres.
Five years and over	6,000	One year	6,000
Four years	2,500	Under one year	16,000
Three years	3,000		
Two years	4,500	Total	38,000

Most of the rubber five years old or older is planted 200 trees to the acre, and in some cases 300 trees, but more recently the practice has been to limit the planting to 175 trees per acre. The number of planted rubber trees of all ages in the Federated Malay States is approximately between 6,000,000 and 7,000,000.

The department has made arrangements to take over from the conservation of forests an excellent plantation of *Hevea*, seven years old, adjoining the public gardens, and this will be used to carry on a continuous and exhaustive series of investigations and experiments into various questions, physiological and economic, in regard to latex and the best methods for its extraction and preparation. The year's production of rubber in the Federated Malay States is estimated at 300,000 pounds—all the result of cultivation.

RUBBER PLANTING IN JAVA.

THE British consul at Batavia reports that considerable attention has been given to the cultivation of rubber trees in Java during the past few years, and at the end of March, 1905, the Netherlands Indian government had 9626 acres planted out with 610,665 trees, while 309,404 plants were at that time being tended in nurseries. The culture of these trees would appear, says the consul, to give every promise of satisfactory results, and it is reported that orders have been given to bring a much larger area under cultivation. ==It is known from other sources that the various problems bearing upon rubber culture and the collection of rubber are receiving the most thorough attention at the gardens at Buitenzorg, Java. This is particularly true with regard to the studies under way in regard to the nature and treatment of latex.

HIGHLANDS AND LOWLANDS ESTATES.

FURTHER details can now be given in regard to the Highlands and Lowlands Pará Rubber Co., Limited, the formation of which was reported in the September issue of THE INDIA RUBBER WORLD (page 386). The acres of the three estates combined is 14,669, of which 2086 are under cultivation, the amount planted in rubber (with or without other crops) being 1958. The number of rubber trees standing at the beginning of the year was reported as follows:

Eight years	26,023	One year	23,765
Five and six years	58,215	Under one year	92,650
Three and four years	20,046		
Two years	101,862	Total	322,611

The older trees are already productive and it is proposed to tap extensively during this business year. Also to plant 5000 additional acres to rubber in the next six years. The secretaries and offices of the company are Messrs. Thomas Barlow & Brother, 28, Fenchurch street, E. C., London.

"CEARA" RUBBER FROM INDIA.

A RECENT circular from Wm., Jas. and Hy. Thompson (London) reports: "We have received a small consignment of smoked cured Ceara rubber taken from trees growing on an estate in South India. The rubber is in the form of very thin wafers and realized 5*s.* 9*d.* [=$1.39⅛] per pound. Although very tightly packed the parcel showed not the slightest trace of heat. The rubber was of a very strong nature, stretching almost transparent."

MEXICAN PLANTATION NOTES.

ST. PAUL Tropical Development Co. (St. Paul, Minnesota) was incorporated sometime ago under the laws of Delaware to engage in rubber growing in Mexico. About May 1 last they began the sale of their acreage, with a view to developing what they consider an exceptionally good piece of rubber land on the isthmus of Tehuantepec. The president, M. P. Ryan, and other officers are business men of position in St. Paul. The plantation manager is L. A. Ostien, sometime with the Utah state agricultural college and familiar, by study, with tropical planting problems.

PLANTING "CASTILLOA" IN CUBA.

THE Ocean Beach Fruit Lands Co., organized a little over a year ago at Milwaukee, Wisconsin, with $25,000 capital, is developing a tract of 1000 acres at Ocean Beach, the American town on Guardina bay, in Pinar del Rio province, Cuba. The purpose is to plant oranges, rubber, and tobacco. This year the company planted 10,000 seeds of *Castilloa elastica*, from trees growing in various parts of Cuba, where they were introduced from Mexico. The officers of the company are representative business men of Milwaukee, and the man-

ager, Edward A. Kümmel, was formerly manager of the Mexican coffee and rubber plantation of the Batavia Co., also of Milwaukee. Mr. Kümmel writes: "We have every confidence in the future of rubber in Cuba, and are proud to say that as far as we know, we shall have the first rubber plantation in Cuba."

RUBBER CULTURAL EXPERIMENTS

DR. PEHR OLSSON-SEFFER, director of La Zacualpa botanical station at Escuintla, Chiapas, Mexico, since its establishment in December last, for the carrying on of experiments in scientific rubber culture, has gone to the Orient to make studies of a similar character on the older rubber plantations in Ceylon and elsewhere. Dr. Olsson-Seffer has instituted series of experiments in relation to tapping methods, treatment of the latex, and also the effect of selection in the development of rubber trees, all of which will be continued during his absence. It is intended in due time to make public the results of all these experiments.

PLANTATION HOUSE ON A LARGE PRIVATE RUBBER ESTATE IN MEXICO.

NORTHERN MEXICO GUAYULE MAD.

THE excitement which followed the discovery of oil in Texas a few years ago has its parallel in the craze which exists throughout northern Mexico over the discovery of rubber in the guayule shrub says a correspondent of the New York *Sun* writing from Monterey. The utilization of the shrub is no longer an experiment. More than $3,000,000 has been invested in the erection of guayule rubber factories in this region within eighteen months and the investment of several more millions is in prospect.

The guayule plant was until recently regarded as a nuisance, and the arid land on which it grows had little value for any purpose. Now two tons at least of guayule shrubs can be got from an acre, which sell as high as $100 (silver) a ton. Hence many ranch owners who were land poor have become rich.

Francisco Madero, of Parras, Mexico, is mentioned as the owner of 4,000,000 acres of guayule producing land. He is said to be the largest individual land owner in northern Mexico. He estimates that his land will produce at the first cutting not less than 5,000,000 tons of guayule. At $50 gold a ton the shrub would bring him $250,000,000. In the opinion of experts who have gone over much of this land it will yield at least two tons of the shrub to the acre. That being true, its value is $400,000,000.

Madero is a rich man outside of his landed holdings, and is the head of a syndicate organized, as the *Sun's* writer hears it, "to fight the Continental Rubber Co.," which is an important New York corporation. There does appear to be competition at least in the buying of guayule shrubs. One company, it is reported, recently paid Eugenio Ortiz, owner of a large guayule bearing ranch in the state of Nuevo Leon, $200,000 in advance for the product from this land for a period of eight years.

Señor Madero, by the way, is showing his faith in guayule by building factories for getting rubber out of it. He owns two such factories already near Parras, and is having others planned for him, in the state of Zacetecas and elsewhere. The *Sun* refers to the large guayule factories of the Continental Rubber Co., and several smaller ones owned by various parties, and concludes with more stories of fortunes quickly made by selling the shrub:

A number of Americans have made fortunes out of guayule lands since the boom started. Soon after the discovery was made that the shrub was valuable J. H. Sendole of San Antonio, Texas, purchased a ranch of 10,000 acres of land situated between Torreon and Saltillo for $3000. He recently closed a contract with one of the rubber companies for the sale of all the guayule shrub upon the ranch for $180,000 Mexican money, which is equivalent to $90,000 American gold. He still owns the land.

Thomas Hebb, a Texas railroad conductor, came to Mexico about five years ago and purchased a ranch of about 40,000 acres in the Avalos district, state of Zacetecas, for 30 cents an acre. The land was worthless except for grazing purposes. Mr. Hebb found that his property was in the very heart of the guayule growing region. He closed a deal recently for the sale of all the guayule shrub upon the ranch for $235,000.

HOW GARAGEMEN SAVE TIRES.

IT is a fact well known to everyone who has much experience with automobiles that oil or gasoline will cause disintegration and ruin of rubber tires. That being the case, the greatest care is taken by the conscientious chauffeur when filling his tank or oiling his machine lest there should be a spill or leakage that might some day cause trouble. In the public garages nowadays every precaution is taken to see that every drop of oil goes where it is intended, and that no gasoline is spilled over the floor to generate a vapor that might lead to disaster, or to penetrate a tire and damage it.

Perhaps fire department and insurance regulations have had something to do with this, but, be that as it may, the effect is the same. The floor of every well regulated garage is kept as clean and dry as possible. In most places there are shallow trays that fill the entire space under the automobile. When a motor car is to be oiled a tray is placed beneath it and if any oil should drop it would be prevented from falling on the floor. The operation of oiling completed, the tray is withdrawn, wiped dry and placed aside until needed again. It is next to impossible for harm to come to a tire from oil or gasoline while in a garage.

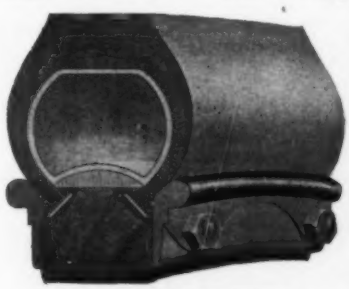
A STUDY OF FLAT TREAD PNEUMATIC TIRES.

THE flat tread boom, which is now on in full force, has led many to look into the arguments for and against this type, even when they did not intend making a change. Others are interested, without having the time to investigate the matter thoroughly, and have expressed a wish to have the question threshed out. After all, it is not a matter of any great importance; but when one considers the popularity of this type, in the face of the recent demand for round tires, it must have a firmer basis than a passing whim. The round type is, of course, the oldest; and though tires were later made in squares and horseshoe shapes, the tendency for several years has been toward a round section, which shape best distributes the strain.

Let it be got clearly in mind at the beginning, that practically all the flat treads now made, whether Palmer, Gaulois, Imperial, Michelin, Continental, Harburg, Pennsylvania, G & J, or Diamond, are made in a round section, so far as the canvas and strains are concerned. The names just given do not complete the list, either, because every well established tire house is now making flat treads, regularly or for special orders.

It is not known just when the flat tread was first made. Like almost every other commodity, the idea was probably advanced long before it came into real use. The Continental Caoutchouc Co. seem to have first brought the flats prominently forward, the Michelins following closely. They have now been in use for nearly two years in Europe, though the G & J and the Diamond people, who were the first Americans to take them up, have only been making them during the past season. They are still far more popular in Europe than here, though they are coming rapidly into favor with Americans. The presumption has really been against them, and they have not been well advertised in the United States; and their rapidly growing popularity is based upon the recommendations of those who have actually used them. Everybody who has ever used flat treads has a good story to tell of their steadiness, their lasting qualities, and their behavior on skiddy roads.

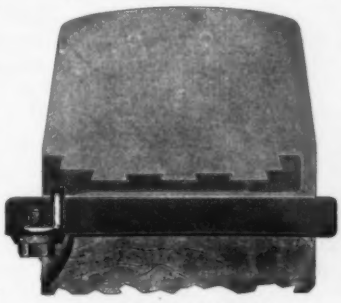
The disfavor in which flat treads were first held grew out of an apparent weakness, which has no doubt thrust itself upon everybody who looked at them for the first time. This is that a flat tread, built upon a round tire, will necessarily leave thick corners on each side. At first sight, it would seem that the weight of the car, running upon these corners, would make the tire bend or crimp sharply in the center of the tread, thus destroying the canvas, sooner or later, along that line.



FLAT TREAD PNEUMATIC.

The more a man knows about tires, the more does this criticism appeal to him, and the makers admit that such crimping is a possibility, if the tires are run too soft; but having the canvas built in round section largely removes this slight tendency.

Another objection sometimes brought against flat treads is that they must be molded. Though rarely seen now, it was formerly common for the canvas to be wrinkled or crimped in the mold, thus bringing it very close to the surface in spots, where it soon wore through and burst. Some tire menders claim to have found such flaws in some of the European flats; but such instances are rare, and are hardly known among American flat treads.



FLAT TREAD SOLID TIRE.

Other criticisms, purely theoretical, are that flat treads are more likely to catch on sharp stones, thus having their edges gouged off very soon, while round tires would glance off or kick the rocks out to one side. Others think that a heavy side strain, catching upon the tread edge, would have a better chance to tear the rubber loose from the canvas. Some have also advanced the objection that every increase in the thickness of the tread must necessarily take away from the speed and bounciness of the tire, making it ride harder and require more power. Another theoretical criticism is, that the wider the tread and the more the road contact, the more road friction there will be, meaning less speed and resiliency. They feel that when running in mud and on wet asphalt, flat treads would necessarily create more suction. The Collier Tyre Co., who have made a study of this very point, and who, in consequence, have made their tires with narrow, pointed treads, print testimonials reading like this: "My car, owing to your narrow tread tires, raises very little dust, at a time when I have met cars with flat treads raising clouds."

All these criticisms, as we said, are purely theoretical; but they are such that they readily occur to the tire expert, have considerable weight, and have undoubtedly checked the spread of flat treads. As such they must be fairly stated, and balanced against the corresponding advantages.

FLAT TREAD TWIN SOLID TIRE.

Those who have actually used flat treads claim for them several distinct advantages; but to rightly understand some of these, we must bear in mind the importance of speed as a factor in our reasoning. Thus, where the ordinary horse drawn vehicle wants as little road contact as possible, because the only duty of the wheels is to hold up the vehicle, the tendency is toward narrow tires; but in the case of a motor car, the drive wheels, besides holding up the load, must also push the car, which means that they must have a good grip upon the road. The

higher the speed required, the more important does the matter of road hold become. In the case of motor trucks, which wear solid tires and run slowly, road grip is not usually so important as the danger of skidding, and small road contact is aimed at, to lessen road friction in running. Consequently, the tendency in this case has been away from flat treads toward twin tires, which give less suction, have less road contact, give sufficient traction or road grip for their low speeds, and thus very greatly lessen the danger of skidding.

At Ormond Beach, Florida, measurements showed that round tires, when running at high speed, made tracks in the sand not over a quarter of an inch wide. In other words, the tires have not time to flatten and thus secure the necessary road hold. Consequently the drive wheels spin around, losing much motion, throwing up clouds of dust or tar and chafing the tires so that they heat and burst.

Thus it was for the use of racers that flat treads were first made. Running on a smooth track, there were no obstacles to drink, quoting Michelin, and it mattered not if the tread were a bit stiff. What the racers wanted was a good purchase on the ground, so that every turn of the wheels would count, and they found this in the flat tread. Resilience is so unimportant on smooth, hard sand, that the Ormond racers have argued that wooden tires would do as well as pneumatics.

The fact that racers used flat tires appealed to the sporty instincts of many motorists, especially in Europe; but to their surprise, they found, on experience, that this type was well adapted to ordinary tripping, having considerably longer life and being much less apt to skid. The difference in the power needed to drive it is small, and its friends claim that this tire runs steadier and smoother than the round, and that it behaves as well or better on new made road. All agree, however, that flat treads will not do on front wheels, being hard to steer. Users of these tires do not see that they run any heavier in mud, but all agree that they will not skid in mud. As for dust, there seems to be little if any difference. Flat treads allow of abundant corrugation, the principal English flats, as the Palmer and Imperial, having several bold ribs. These ribs lessen the possibility of suction and make the tire practically skid proof, both of which are points of such importance that some of the best tire experts consider them as fully justifying the flat tread type.

Flat tread tires are usually made of stronger canvas than the ordinary type, so that it is not always possible to attribute their greater durability to the flat tread; but some companies, like the Diamond, put the flat tread on their regular type. In such cases the cost is 10 per cent. more, owing principally to the extra rubber; but as the life of the tire is said to be prolonged more than 10 per cent., the extra cost is more than justified. A tire necessarily wears most on the center of the tread, especially on smooth roads; but much of the influence of the flat tread in prolonging life is due to its protecting the tire from punctures and stone bruises, which alone would recommend this type to many drivers.

Of course much depends upon personal likes and dislikes, and the flat tread is undoubtedly better fitted for certain conditions than for others; but unlike most goods, it seems to show up better in practice than in theory.

INDIA-RUBBER GOODS IN COMMERCE.

EXPORTS FROM THE UNITED STATES.

OFFICIAL statement of values of exports of manufactures of India-rubber and Gutta-percha, for the month of July, 1906, and for the first seven months of five calendar years:

MONTHS	Belting, Packing, and Hose	Boots and Shoes.	All other Rubber.	TOTAL
July, 1906.....	$ 90,875	$153,252	$ 235,410	$ 479,5
January-June.....	572,661	461,902	1,568,102	2,602,6
Total.....	$663,536	$615 154	$1,803,512	$3,082,3
Total, 1905... ...	637,102	588.309	1,671,076	2,896,4
Total, 1904.....	504,666	472,128	1,382.582	2,359 3
Total, 1903.....	474,684	341.792	1,459,954	2,276,4
Total, 1902.....	386 105	355,092	1,116,558	1,857 7

THE PROPERTIES OF NANTUSI.

NANTUSI is the name of a vulcanizing agent and preservative for rubber, manufactured under a secret formula, which, after several years of trial, has come into large use in England and elsewhere. It is offered as preventing the superficial cracking of rubber exposed to the atmosphere; adding life to and preserving the quality of the rubber; doing away with the possibility of acidification by sulphur as ordinarily used; and reducing the cost of the mixing. In connection with 20 pounds of fine Pará, for example, instead of 1½ pounds of sulphur, 2¼ pounds of Nantusi are used. While the cost is somewhat higher, the volume of the compound is increased enough to really cheapen the cost per pound. "The use of the cheap grades of new rubber," it is claimed, "is attended with risk of quick deterioration in use (*i. e.*, 'perishing'), and the objection of considerable 'softening' of the uncured scrap upon rewarming and calendering. The use of Nantusi modifies both of the above objections very materially." The manufacturers of this material are The Rubber Chemical Co., Limited, Birmingham, England.

PROPOSED NEW ROUTE TO THE AMAZON.

SENOR EDWARD MORLEY, of Huigra, Ecuador, writes to THE INDIA RUBBER WORLD that the government of Ecuador has granted a concession to himself and Mr. George P. Altenberg, of Cincinnati, Ohio, to construct a railway from Huigra to Cuenca, Ecuador, a distance of 90 miles, with the right to extend it to the upper Amazon at a point where it is navigable for large steamers, a distance of 15 miles more. Huigra is on the Guayaquil and Quito railway, 72 miles from Guayaquil, the principal port of Ecuador on the Pacific. The completion of the new railways will give a line of 312 miles from the seaboard to the upper Amazon, and facilitate the shipment of rubber, since some of the richest rubber fields of the world will thus be placed practically 3000 miles nearer New York by the use of the route across the isthmus of Panama.

OVERHEARD AT A COLOMBO DENTIST'S.—*Dentist* (to patient): "You have several teeth which need attention, etc. *Patient:* "Oh! you need only do those that absolutely cannot wait, as I would much sooner put the money into rubber than teeth just now."—*Times of Ceylon.*

THE INDIA-RUBBER TRADE IN GREAT BRITAIN.

By Our Regular Correspondent.

COMMUNICATIONS dealing with the progress of the chemistry of rubber were read at the recent York meeting by Dr. Harries of Berlin, Mr. Pickles, and Professor Tilden. As I have not seen anything more than a brief reference I am unable to make any comments as yet. It is noteworthy how in recent years the chemistry of rubber has received notice at gatherings of scientists, notably the International Congress of Applied Chemistry. The British association concerns itself primarily with the purely scientific side and references to Professor Tilden's production of rubber from isoprene are more suited to the atmosphere of the Association meeting than they would be to a gathering of technologists who are concerned with the financial aspect of discoveries. One continually meets people who talk about the fortune in store for the manufacturer of artificial rubber, but to my mind there is nothing in it in these days of Pará plantations.

THE BRITISH ASSOCIATION.

A FRIEND of mine who has business relations in Egypt and who has recently returned from a prolonged stay at Omdurman says that the Soudan rubber industry, of which so much was expected, has come to nothing. The little business there is is in the hands of the Soudan government and it appears that at first the trees were ruthlessly destroyed in obtaining the rubber. The main point, however, seems to be that there is very little rubber to be had and the Nile is not likely therefore to be used as an outlet for the rubber export trade. Turning to anothar quarter of the globe, I am informed by a man who has been many years in Ceará that the natives who return there after their work in the Brazilian swamps are showing a tendency to smoke the Ceará rubber after the method adopted for Pará rubber. With regard to the impurities in Ceará rubber, these could be removed before export if it was considered worth while. The exporters say, however, that the difference in price does not recompense them for the trouble of preparing it free from bark, etc., and the initial attempts at reform were not persevered with.

RAW RUBBER NOTES.

IN a recent number of THE INDIA RUBBER WORLD I saw a notice that after a certain time the use of continuous brakes will become compulsory on freight trains in America, or at any rate in some parts. The topic has an interest for the rubber trade because it means an extended use of the rubber pipes. So far it appears that in this country the North Eastern is the only railway to use continuous brakes on goods trains, but the attention of the Board of Trade has been recently called to the fact that many of the railway companies are now running express goods trains timed at the speed of express passenger trains and it is proposed to make it compulsory for such goods trains to be fitted with continuous brakes. This is already done in the case of the new large coal wagons which the North Eastern line are using to take coal from the Durham collieries to the shipping staithes. These wagons hold 40 tons and are run on bogies. They are fitted with the Westinghouse brake, which is used on the North Eastern system in preference to the vacuum brakes. I don't know what is the case at the present time, but a few years ago the bulk of the rubber pipes were supplied by Spencer Moulton & Co., of Bradford-on-Avon. The patent rubber and steel buffer spring of this firm is now in general use on the North Eastern express goods trains.

CONTINUOUS BRAKES FOR FREIGHT TRAINS.

THE leather substitute made by this firm, which has works at Mounton Green, near Manchester, continues to gain in popularity. For some time a business firm of Manchester have been pushing its sale in Spain. Such progress has been made that a special representative for Spain in the person of Mr. R. M. Nosworthy has been appointed. His offices are at Barcelona, whither he has recently proceeded. The exact composition of Pluviusin has not been made public but it is known to be an oxidized oil product quite different from the nitrated celluloses which Pegamoid and one or two other such bodies are composed of. These leather substitutes are finding an increased use in the upholstering of motor cars.

THE PLUVIUSIN COMPANY.

A CERTAIN sentence in a paragraph I wrote last month seems to have been misread by the Editor, who will perhaps allow me to make a correction. When I said that the bootmaker to the King was regularly putting rubber heels on to his ordinary boots sold at 3 guineas a pair I was in no way referring to the boots of the King, about the price and nature of which I know nothing. No doubt I wrote ambiguously but what I intended to convey was that the ordinary boots as supplied to the numerous customers who also patronize the establishment are being largely fitted with a special form of rubber heel.

RUBBER HEEL PADS.

UNDER this heading an interesting letter appears in our August issue. I think it is pretty certain that in a hot climate the slow drying down of rubber to absolute dryness will increase the resin, that is, it will add the resin produced by oxidation of the surface of the rubber to the resin originally present as derived from the tree. Though these resins are not similar it would be an extremely difficult matter to determine the quantity of each present in any sample of rubber. I am not now writing a scientific article for criticism by experts, and so when I do so I may have to modify my statements. It seems clear, however, that rubber which has been practically deprived of its moisture will, if exposed to the oxidizing action of the air or particularly to the sun's rays become resinous on the surface and thus deteriorate in quality. Undoubtedly the greater the attenuation of the rubber sheets the greater will be the oxidation under conditions favorable to it. I am not quite sure what the author of the letter means when he says that the inside of a piece of *Castilloa* rubber which still contains moisture answers all the visual and tactual tests of fine Pará. If it means that the rubbers look the same such a test has no significance nor does a tactual test amount to much unless scientifically carried out. But leaving this aside if it is his contention that the damp core is much better rubber than the oxidized outside I agree with him and here we have clear evidence of the action and the adverse influence of oxidation.

WHENCE THE RESIN IN RUBBER?

IT is agreed on all hands that the game has increased in

favor during the last year or two after a temporary decline, and there is no doubt that the number of balls sold this season is as great if not greater than in any past year of the game's history. The increase of tournaments rather than of actual lawn tennis accounts for this. The bulk of the balls used in tournaments this year have again been supplied by Messrs. Slazenger, though in several cases, notably at Buxton, Ayres balls have been used. That there is a decided difference in the two makes is testified to by the leading players and it is a useful excuse for a player who has done badly at a tournament with Ayre's balls to say that he has been accustomed to play with Slazenger's. I remember once noticing in an Italian shop, I think it was in Florence, some balls covered with red felt instead of the usual white. At the time I thought it was the outcome of the maker's fancy but I am informed by officers stationed at Malta that they always use red tennis balls there as they are better suited to the glare of the sun. They are supplied, it appears, by both the firms referred to above. It must be remembered that practically all the continental courts are of the gravel or cinder type. grass being very exceptionally met with, so the scarlet ball is not so startling as it would be on green grass.

LAWN TENNIS BALLS.

THE changes made in the management of this firm after the somewhat unsatisfactory report at the annual meeting in 1905 seem to have worked well. At the meeting held in Leyland on August 10, Mr. James E. Baxter presiding, it was announced that the trading profits were £23,591, compared with £9,508 in 1905. According to the chairman this satisfactory result was mainly attributable to keeping up the quality of the goods and of sticking out for prices in accordance with the cost of the raw rubber. Incidentally the fact was mentioned that the users of rubber had increased 20 per cent. in the last year while the crop increase had been very small indeed. The increased demand was mainly for motor tires. Judging from the melancholy state of affairs in the proofing trade, as shown by certain British firms, it is not surprising that the chairman had nothing optimistic to say in this branch. The dividend passed amounts to 6¼ per cent. for the year.

LEYLAND AND BIRMINGHAM RUBBER CO.

WHAT A "RUBBER COLLAR" IS.

ONE of the most noteworthy developments of the industry during the last five years has been the fall of the celluloid collar and its rise again as the rubber collar. "As a matter of fact, rubber cannot be used satisfactorily in collars and cuffs, because it is absolutely impossible to bleach rubber to the requisite whiteness," says a manufacturer of some of the more prominent substitutes for linen collars. "If we put enough acid and chemicals into it to bleach it properly the elasticity and life are taken out of the material and the product ceases to be rubber. I know a firm that during the war spent a lot of money experimenting with rubber. There would have been a fortune in it for them if a suitable process had been discovered, but they gave it up as commercially impracticable.

"All the so-called rubber collars and cuffs to-day are either celluloid pure and simple or some combination of cellulose fiber on that order. Three leading concerns in this country and one in Canada furnish sheets of practically the same composition, but under different names to the manufacturers. When celluloid began to go down in trade estimation about four or five years ago and prices got to $1.15 a dozen, a chap up in Connecticut near Hartford started in two rooms to manufacture what he called rubber collars and cuffs. He bought his sheets of fiber from one of the three or four big concerns which supplied the regular celluloid trade, put them through a process of his own and turned out collars with a special finish which sold beyond his capacity to manufacture at 35 cents apiece. To this man belongs the credit of making the rubber collar of to-day a commercial success.

"It was not long before the former makers of celluloid and kindred styles caught on, and by means of a new finish the public were induced to forget their former prejudice against celluloid and the prices advanced to $2 and $2.25 per dozen and to-day are steady around $1.75, where there was no business for the same product under the name celluloid at $1.15."

RUBBER TRADING IN THE WILDS.

LESS than a year ago [writes a correspondent of the New York *Herald*] I met with and spoke in English to an Italian merchant in the wilds of Matto Grosso, the northwestern province of Brazil, whose capital city is five weeks' journey from the seat of government at Rio de Janeiro. For 20 years he had not heard the sound of English voice, and, during all those years, rubber has been flowing through his hands, down the giant river Paraguay, on its way to the markets of the world, via Buenos Ayres or Montevideo. Yet of its actual production he knows but little.

USES OF PONTIANAK.

RUBBER manufacturers who are large users of Pontianak are not apt to boast of it, since a feeling exists in some quarters that it is likely to oxidize and thus shorten the life of the goods in which it has been used. And time was when this was true. Nowadays, however, it is very easy to treat the gum so that it lasts as long as rubber. This being the case, no one can doubt the value of the gum as an assistant in many compounds. One need only appreciate the characteristics of this gum to feel that it would naturally find an outlet in connection with the production of very many rubber products. It is, for example, very plastic, thoroughly waterproof, and of great tenacity. It blends well with India-rubber, crude or reclaimed, and with Gutta-percha, and takes up a certain amount of compound. Almost any line of goods, therefore, that does not demand elasticity can assimilate a certain proportion of Pontianak, and often with advantage. It is, of course, a cheapener, and calls for skill and judgment in its use. It has its friends and its enemies. Manufacturers who a few years ago used it largely, to day do not buy a pound, while others who once bitterly condemned Pontianak, now purchase it by the ton. Handled properly and put where it belongs, it is a most valuable compounding adjunct, but it has its well defined limits, beyond which lies disaster.

F. J. HOLLOWAY, of the Kepitigalla estate, in Ceylon, booked orders for this year's crop of *Hevea* rubber seed amounting to £4333 [=$21.087].

NEW GOODS AND SPECIALTIES IN RUBBER.

EVER-READY HEAT-STORING BAG.

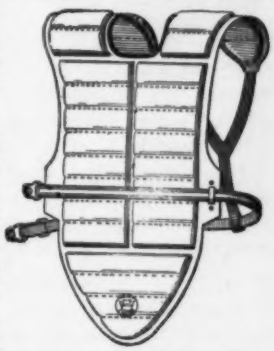
THE illustration relates to a new device, called the Ever-Ready Heat-Storing Bag, which is claimed as an improvement over the hot water bottle. It is made of the best Pará rubber permanently filled with harmless salts which possess heat-absorbing qualities which do not soon become exhausted or impaired. When the bag is placed in boiling water the salts become liquefied and remain liquid until heat is desired at any time afterwards, when by a simple device recrystallization is started and dry heat of about 132 degrees F. is developed which lasts for hours longer than hot water. The bag may be boiled again when convenient to store heat for use weeks or days afterwards. The heat lasts from an hour and a half to ten hours and with ordinary care the bag will last a long time as the salts preserve rubber. It has the further advantage of always being ready, day or night. An even temperature is maintained for hours and there is no moisture; the price that so many have to pay for the luxury afforded by the hot water bottle is severe burns caused by bursting seams and leaky stoppers, but with dry heat this is not to be feared. [Bernard Manufacturing Co., 69 Murray street, New York.]

THE L. & M. TIRE ADJUSTER.

THE reason that so much time is expended in putting on tires is due to the fact that the contraction of the tire at one point, caused by pressing the ring into place, forces it out at other points. This expenditure is not alone one of time, as much energy is hopelessly lost. Anything that tends to lessen this outgo is something to be considered and adjusters are being introduced into many kits. The L. & M. Tire Adjusters are easy to manipulate and many "swear by them," but not in a profane sense; their use seems to do away with that feature of tire adjustment. Five minutes' time, with no assistance, is the space alotted to perform the task. The illustration serves to show the position in which the adjuster is placed. "A" should be over the tire ¼ of an inch clear of the ring space, and "C" underneath the rim; turn "B" to the right. This process has to be repeated with the six tools forming the set placed at equal intervals, until the space is made sufficient to allow the ring to slip into place. These may also be used in taking off the tire [Long & Mann, Rochester, New York.]

INFLATED CATCHER'S BODY PROTECTOR.

THE 1906 improved patent of the Reach Inflated Catcher's Body Protector has been a boon to the men on the diamond, times without number. So many catchers are injured by being struck on the shoulder or collar bone by foul tips, that it behooves every player in that capacity to protect himself with any armor that would protect and at the same time not interfere with the activities incident to the play. The Reach protectors are light and pliable, made of the very best rubber and inflated with air. When not in use the air may be let out and the protector rolled into a very small compass. This makes it an especially attractive proposition as it is necessary oftentimes for players to have the paraphernalia of the game reduced to its lowest possible amount. That there is a protector of this sort, with all the recommendations of this one is matter for which umpires as well as catchers have reason to be grateful. [A. J. Reach Co., Philadelphia.]



THE P. D Q TIRE REPAIR PLUG.

A SPEEDY and effectual means of tire repair has been found in the P. D. Q. Tire Repair Plug. No cement is needed, the whole procedure being to locate the puncture and insert a small plug. The chief factor of recommendation about this plug is that it is made entirely of rubber, no metal being employed in its construction. In inserting it the inner tube has to be removed at the place of puncture only and the tip inserted. However, if the tip is wet with cement the plug will go into place with greater ease. When this simple operation is completed the repair is made and nothing further remains to be done—the tire has taken a new lease of life. The flange is jammed between the inner tube and the shoe, while the point projects through the inner tube, and is forced against the same by the pressure in the inner tube. The pressure in the inner tube against the point and the pressure of the inner tube against the shoe hold the flange

of the plug in place and jams the inner tube between the point and the flange, which is the secret of the merit of the plug. Wear and heat will not affect it at the point of repair and there is no chance for leakage. [Huntington Automobile Co., Huntington, New York.]

TIRE TESTING TANK.

So many conveniences are being constantly added to the long list already in existence that when something especially desirable appears, one wonders—What next? The Tire Testing Tank is a part of the tire outfit both of the auto and the bicycle, that is fast falling into line as an article of merit. The tank is made with the same curvature as a tire when inflated, and is provided with iron legs riveted on each end, supporting the tank in a level position. When in use it should be filled about three-fourths full of water, and the tire is submerged, after inflation of course. The puncture or leak can readily be located as the air will immediately come to the surface in small bubbles. [J. H. Edwards, No. 59 Park place, New York.]

A HANDY AUTOMOBILE BAG.

A FRENCH invention that will be appreciated by automobilists is a waterproof bag or box made to fit inside the spare tire when on tour. The little circular trunk, for that is what it really is, does not take up room that would be utilized for any other purpose, and it gives big returns for the space it does occupy. In it may be carried the waterproof garments or other spare apparel of the motorists. If the owner chooses, he may dispose of the box, which the inventor calls a *sac chauffeur*, in some other part of the automobile, as its possible uses are many and it is of a size so convenient that it would not be in the way in almost any part of the car. [L. Vuitton, 1 Rue Scribe, Paris, France.]

THE GOGGLETTE.

SOMETHING new in goggles has been placed on the market recently, which autoists are finding highly satisfactory. A number of features are a pronounced success among them being that of a curved lens. The cups (which are of aluminum) are quite flat, this giving a full and unobstructed view, laterally as well as downward. Where the cups rest against the face there is a small pneumatic rubber cushion to relieve the pressure upon the blood vessels that might under some conditions be harmful. The cups, too, are ventilated, there being an air space around the entire circumference of the lenses, the air having free access from without and being conducted to the inner surface of the lenses, thus keeping them cool, clear and unaffected by the heat and moisture of the face. A fine mesh inserted between the inner and outer wall of the goggles also prevents small insects or particles of dust from entering the eyes. Aluminum and rubber both lend themselves especially well to washing, hence the goggles from a sanitary standpoint have great value. For convenience in carrying the Gogglette is provided with a double pointed nosepiece so that it may be folded readily and carried in the pocket, while the nosepiece itself can be bent to fit varying pupillary distances. [E. B. Meyrowitz, No. 104 East Twenty-third street, New York.]

TWO NEAT RUBBER HEELS.

THE wearing of rubber heels has become very general in Canada, which is only natural in view of the Dominion being under the British flag, and everybody knows how popular these articles have become in the mother country. To some it might appear that a rubber heel is simply a rubber heel, and that there is nothing more to say. But there are great differences in makes—in form, method of construction, and quality of material. A manufacturer has to take all these into consideration, besides making his goods neat appearing, without making the price too high. Here are shown two attractive styles made by The Dunlop Tire and Rubber Co., Limited, Toronto.

SPRING HEEL CUSHION

A VENTILATED shoe and in connection with this a Spring Heel Cushion, is one of the innovations in the boot and shoe trade, a patent for this having been granted to Mathew Byrne and William G. Young. Below the insole plate and attached to it at the forward end is a cushion plate of rubber with a series of apertures. In the plate is also arranged a series of hollow apertures, these being on the under side. Below the cushion plate and secured to it and the insole plate is a lining and below this is arranged the heel of the shoe which is constructed in the usual way. Where the cushion plate is stitched to the heel insole, it is beveled or tapered, the inner end of the insole plate being also tapered, thus providing for a general rise from the sole portion of the shoe to the cushion portion in the heel. By this construction no unevenness of the insole will be noticeable. The advantages of such a lining will serve to lessen the vibration.

RECENT RUBBER PATENTS.

UNITED STATES OF AMERICA.

ISSUED AUGUST 7, 1906.

NO. 827,705. Pneumatic horse collar. J. R. Burkholder, Lancaster, Pa.

827,719. Ear muffle. J. R. Engleman and O. Partenheimer, Jersey City, N. J.

827,739. Pipe or hose coupling. C. E. Lingenfelter, assignor to Scully Steel and Iron Co. both of Chicago Ill.

827,758. Fountain drafting pen. G. P. Smith and P. Stokes, Philadelphia, Pa.

827,784. Cushion tire, E. B. Cadwell, New York city, assignor of one-third each to F Johnston and F. M. Ashley.

827,797. Horseshoe. M. D. Glassbrooke,

827,835. Gas main bag. J. H. White, Jersey City, N. J., assignor of one half to A. Bell Malcomson, West Orange, N. J.

827,910. Apparatus for administering liquid anesthetics. J. A. Hollenberger, Hagerstown, Md

827,927. Pneumatic tire. H. D. B. Lefferts, Orange, N. J.

827,936. Rubber warming and mixing mill. C. F. Obermaier, Yonkers, N. Y.

827,938. Rubber wheel tire. H. G. Osburn, Hoboken, N. J.

828,022. Truss S. A. Donnelly Chicago, Ill.

828,178. Bed pan. A E. Betts, Kensington, Md.

828,223. Detachable tire rim. H. G. Leisenring, Wayne, Nebr.

828,241. Cotton gin roller. H Petersen, Willacoochee, Ga.

828,243 Hose coupling. J. F. Polmann, Wallington, N. J.

828,254. Tire. J. H. Swain, assignor to H. M & S. Armored Tire Co, Inc. both of Pittsburgh, Pa.

Trade Mark.

3,500. Standard Underground Cable Co., Pittsburgh, Pa. *Essential feature.*—The word ECLIPSE For insulated wire.

ISSUED AUGUST 14, 1906.

828,296. Conveyer. C. K. Baldwin, New York city, assignor to The Robins Belt Conveying Belt Co., a corporation of New Jersey.

828,415 Bowling-alley pin. T. Mayhew, assignor to American Promoting Co., both of Detroit, Mich.

828,416. Tire. F. Mesigner. New York city.

828,562. Hose reel. G. M. Melven, Louisville, Ky.

828,613. Milking machine. F. A. Lane, assignor to D. H. Burrell & Co., both of Little Falls, N. Y.

828,641. Tire for motor-cars. I. Clifford. London, England.

828,666. Oil vaporizer. F. F. Kanne, Waterville, Minn.

828,701. Tire cover. W. A. Allen, New York city.

828,704. Rubber printing stamp. L. B. Blackmore, assignor to The Blackmore Engineering Co., both of Arlington, N. J.

828,705 Cleaning brush. P. J. Bode, assignor of one fourth to C. G. Nagel, both of St. Louis.

828,712 Atomizer and like instrument. F. C. Dorment Kalamazoo, Mich., assignor to L. R Williams. Chicago.

828,841. Locking band for pneumatic tire covers. J. Cottrell, assignor to A. H. Smith, both of London, England.

828,863. Automobile wheel. A. J. Robertson, Chicago.

Trade Mark.

12,734. The Indiana Rubber and Insulated Wire Co, Jonesboro, Ind. The word PARAFF.' For insulated wire, cables, and insulating tape.

ISSUED AUGUST 21, 1906.

828,872. Attachment for hair-combs [comprising an air bulb]. U. L. Berger, Washington, D. C.

828,893. Sectional rim. W. G. Marr, Springfield, Mass.

828,916. Renovator [with blast nozzle and elastic bulb]. S. E. Allison, Chicago.

828,920. Fountain pen. G. F. Brandt, assignor of one half to C. Brandt, both of Boston.

828,973. Fountain Pen. W. W. Sanford, Newark, N. J., assignor of one half to F. D. Bennett, Freehold, N. J.

829,009. Elastic chain. G. Helps, Nuneaton, England.

829,059. Adjustable sick-bed cuspidor. W. B. Campbell, Jackson, Mich.

829,274. Diving apparatus. F. Knoff, Chicago.

829,281. Bath cabinet. W. E. Monro, London, England.

829,327. Rubber eraser protector. W. N. Crisp, Baltimore Md.

Design.

38,185. Inflatable toy. C. Coller, assignor to A. Behrend and J. Rothschild, both of New York city. *Claim.*—The ornamental design for an inflatable toy.

Trade Marks.

1,413 The Standard Paint Co., New York city. The word RUB-RINE. For liquids in the nature of rubber in the form of paint and cement coating

4,653. The Goodyear Tire and Rubber Co., Akron, Ohio. The word GOODYEAR used in connection with a Mercury foot. For rubber tires.

7,202. The Goodyear Tire and Rubber Co., Akron, Ohio. The word PATHFINDER For rubber tires

7,204. *Same.* The word MONARCH.

7,205. *Same.* The words GIANT HEAVY ROADSTER.

7,207. *Same.* The words AKRON No 20

7,209. *Same.* The words TIP TOP.

7,210. *Same.* The word EUREKA

11,990. The Miller Rubber Mfg. Co., Akron, Ohio For seamless rubber gloves.

ISSUED AUGUST 28, 1906.

829,461. Vehicle wheel and pneumatic tire therefor. E. Chaquette, New Rochelle, N. Y.

829,496. Protecting cover for vehicle tires. R. Walwork, Manchester, England.

829,546. Packing P. Schou, Copenhagen, Denmark.

829,608. Fishing cork or float H. T. Stanton, Tuxedo Park, St. Louis county, Mo.

829,741. Swimming shoe. A. Schwalge, Chicago.

829,840. Gasket. G C. Bruner, assignor of one half to C. Nussmeier, both of Evansville, Ind.

829,893. Cornet mouthpiece. M. M. Rubright, Hartville, Ohio.

Trade Mark

7,203. The Goodyear Tire and Rubber Co., Akron Ohio. The word CACTUS For rubber tires

[NOTE.—Printed copies of specifications of United States patents may be obtained from THE INDIA RUBBER WORLD office at 10 cents each, postpaid.]

GREAT BRITAIN AND IRELAND

PATENT SPECIFICATIONS PUBLISHED.

The number given is that assigned to the Patent at the filing of the Application, which in the case of those listed below was in 1905.

* *Denotes Patents for American Inventions.*

[ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, JULY 25, 1906.]

6,386 (1905). Means for attaching pneumatic tires to the rim. E. Schmitz, Cologne, Germany.

6,432 (1905). Elastic tire. S. Leech, Loughborough.

6,452 (1905). Pneumatic tire. J. Stevens, London.

6,485 (1905). Pneumatic tire. [A band adapted to be wound round the rim comprises an outer layer of balata glued to an inner strip of leather.] J. L. Thiessen, St. Gilles, near Brussels.

6,492 (1905). Horseshoe. P. B. Cow, F. J. Jelly, and J. J. Gazzard, all of London.

6,574 (1905). Reservoir pen. C. P. Schultz, Brixton, Surrey.

6,612 (1905). Pneumatic tire. [Puncture is prevented by lining the inner surface of the outer cover with an undistended layer of coils of rubber tubing.] W. H. Lambert, Silsden, near Keighley, Yorkshire.

6,641 (1905). Machine for producing pneumatic tire covers. A. E. Vincent, Noisy le-Sec, Seine, France.

6,641a (1905). Apparatus for setting beaded edges of pneumatic tires. *Same.*

*6,669 (1905). Bath mat. J. H. Pugh. New York city.

6,678 (1905). Pneumatic tire. [Relates to a ribbed rubber tread, the object being to prevent side slip and puncture.] H. J. Drew, Charfield, Gloucestershire.

6,754 (1905). Puncture-preventing device [consisting of an arch-shaped steel band]. A. Sabarini, London.

6,764 (1905). Heel protector. I. C. Schofield, Halifax, Yorkshire.

6,810 (1905). Heel protector. J. Wilkinson and A. Wilkinson, both of Manchester.

[ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, AUGUST 1, 1906.]

7,021 (1905). Means for attaching pneumatic tires to rims. J. H. K. McCollum, Toronto, Ontario.

7,084 (1905). Vaginal syringe. S. Watkins, Wolverhampton. (Vidaver Mfg. Co., New York city.)

*7,129 (1905). Means for separating India-rubber and like gums from woody and other matter by settling. W. A. Lawrence, New York.

7,221 (1905). Pneumatic tire. E. Collner, C. Paulitschky, and R. Paulitschky, Vienna

7 243 (1905). Pneumatic wheel. [The wooden felloe is strengthened by metal side cheeks and is recessed to receive the pneumatic tube which supports an outer channeled metal rim, formed in semicircular halves secured together by plates and screws.] H. Peers, Staffordshire.

7 336 (1905). Heel protector. J. J. Whitehead, Preston, Lancashire.

7,393 (1905). Elastic tire. [A number of blocks of rubber are secured edgeways close together in rows, in staggered relation, upon the wheel.] H. Swales, London.

[ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, AUGUST 9, 1906.]

*7 485 (1905). Life belt. [An inflatable rubber tube, contained within a casing, is fitted to the belt by loops and is provided at the ends with means of inflating from the mouthpiece and from a pump.] S. Friedman and A. Hollander, Paterson, N.J.

7,547 (1905). Elastic tire. J. Todd and W. E. Gibson, Twickenham.

7,553 (1905). Means for attaching elastic tires to wheel rims. A. T. Collier, St Albans, and Reilloc Tyre Co., London.

7,694 (1905). Means of treating India-rubber juice. L. P. T. Morisse, Paris.

7,705 (1905). Processes for preparing India-rubber ready for manufacture into articles. L. P. T. Morisse, Paris.

7,712 (1905). Dress preservers. W. F. Lucas and W. D. Grinley (trading as W. F. Lucas & Co.) London.

7,728 (1905) Elastic tire. W. B. Hartridge, London.

7 735 (1905). Elastic tire. W. B. Hartridge, London.

7,825 (1905). Pneumatic tire. D. Purves, Southport, Lancashire.

[ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, AUGUST 22, 1906.]

8,498 (1905). Invention designed to facilitate the application and removal of pneumatic tires. G. Jonas, Hyde Park, London.

8,514 (1905). Leather treated with rubber for tire covers. R. Withey, South Bermondsey.

8,536 (1905). Golf ball cleaner. [Rubber cup-shaped receptacle provided with a sponge.] J. D. Patchett, Bristol.

8,585 (1905). Means for securing revoluble heel pads to boots. A. Haste and T. Watson, Bradford.

8,654 (1905). Solid rubber tire. St. Helens Cable Co. and F. Kenyon, Warrington.

8,695 (1905). Golf flag post. Formed of two metal parts connected by a rubber spring. F. C. Lauder. Wadebridge, Cornwall.

8,750 (1905). Vacuum cleaning apparatus. F. V. Schiödt, H Hein and H. K. Möller, all of Copenhagen.

8,834 (1905). Eraser. W. H. Weguelin, Cricklewood, Middlesex.

8,865 (1905). Horseshoe. A. Pawlowski and W. H. Dwerryhouse, Liverpool

*8,893 (1905). Pneumatic cushioning mechanism. [Relates to pneumatic cushions for reciprocating beds of printing machines; cylinders divided by a diaphragm, furnished with apertures covered by rubber flap valves.] A. J. Boult, London (C. A. McCain, Chicago, Illinois.)

8,986 (1905). Football bladder. [Formed of a layer of rubber which is attached to a layer of fabric, to prevent the ball from wearing out easily and also over inflation.] L. Hoff, London.

[ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, AUGUST 15, 1906.]

7,912 (1905). Flower holder. [Consisting of a rubber sheet held between two peforated metal blanks, the rubber being slit in the space unprotected by the metal blanks.] W. H. Wilks, Birmingham

7,966 (1905). Sole and heel protector. A. Tullett, Birmingham.

8,086 (1905). Heel protector. J. Wilkinson and A. Wilkinson Manchester.

8,131 (1905). Elastic tire. C. Challiner, Manchester.

8,136 (1905). Inflating pump for pneumatic tires. A. Davidson, E. W. Hatfield and H. P. Green, Sheffield.

8,264 (1905. Pneumatic tire. [For increasing the resiliency and decreasing liability to puncture, the inside of the tread is fitted with a rubber portion, a metal band covered with fabric, and a fabric liner vulcanized in position.] W. C. Baker, Wokingham, Berkshire.

8,289 (1905). Elastic tire and means of attachment to rim. J. W. Cann, Folkestone, Kent.

8,319 (1905). Hose pipe. F. Reddaway & Co. and T. T. Powell, Pendleton, Manchester.

8,378 (1905). Utilizing waste India-rubber. [Consists in recovering waste vulcanized rubber by means of aniline and naphtha.] H. R. Gregory, London, and T. M. Thom, Hertfordshire.

THE FRENCH REPUBLIC.

PATENTS ISSUED (WITH DATES OF APPLICATION.)

360,324 (Feb. 20). L. Morisse. Preparing rubber, etc., from the milk.

360,325 (Feb. 20). L. Morisse. Process for making articles of rubber, etc., directly from the milk.

361,169 (Dec. 29, 1905). E. Francon. Elastic tire.

36..234 (Dec. 30). Roger Labbe et Montais. Skid tread.

362,192 (Jan. 5, 1906). Firme Linoleum werke Delmenherst. Linoleum.

362,154 (Jan 3). S. Baland fils aine. Spring wheel.

362,227 (Jan. 8) J. A. Schweitzer. Ventilator for inner tubes.

362,232 (Jan. 8). Van Minnegesode. Skid tread.

362,295 (Jan 9). G. L. Willaine. Elastic tire.

362,317 (Jan. 10). E. Levi. Spring wheel.

362,365 (Jan. 12). Falconnet-Perodeaud. Elastic buffer or shock absorber.

362,391 (Jan. 13). J. Rusp. Spring wheel

362,869 (Jan. 31). F. Weith. Vulcanizing mold for tires.

362,887 (Jan. 31). Pfleurmer. Anti-puncture compound.

362,925 (Feb. 1). Gayner. Process for mending cut tires.

362,973 (Feb. 3). A. Sauvage. Puncture and skid proof tire.

362,963 (Feb. 6). E. Bry. Applying beads to tire covers.

[NOTE.—Printed copies of specifications of French patents may be obtained from R. Bobet, Ingenieur-Counsell, 16 avenue de Villiers, Paris, at 50 cents each, postpaid.]

FILLING TIRES WITH SAND.

"I FIND," said a man who has not yet come to own a buzz wagon, says a New York newspaper, "that automobile tires are sometimes filled with other things than air. Down on the Jersey coast the other day I saw a man filling a tire with sand.

"This tire had apparently—for the men in the auto appeared to be cool and competent men who knew what they were about—become broken in such a manner that it could not be repaired to stand inflation on the spot, but they wanted something in it and so they filled it with sand. At the place where they were when the tire collapsed the road ran close to the ocean front, and they took the tire off the wheel and one of the men climbed with it down the bulkhead to the beach and there he set to work.

"When he had worked in a lot of sand he would hold the tire up and shake the sand down in it and then he would put in some more, and so on till he had the tire filled.

"This was something new to me, but a friend tells me he has seen it done before and that sand in the tire is better than nothing, that it will cushion the tire in some measure at least and keep the machine from pounding down on that wheel with its sheer dead weight."

LEGITIMATE COLORADO RUBBER.

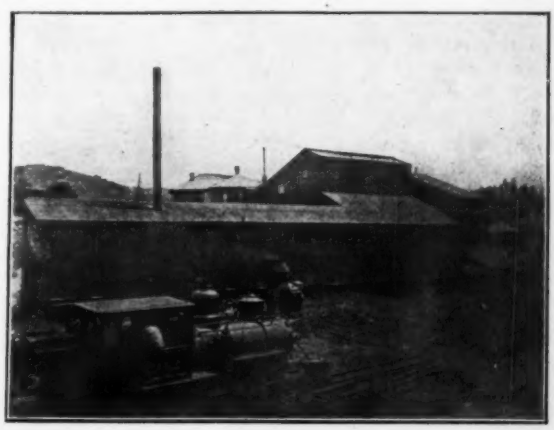
WHATEVER may be said of the Colorado rubber plant, or the production of rubber from it in general, it appears to be certain that one company is not only a firm believer in the possibility of extracting rubber profitably from the *Picradenia floribunda utilis* but is willing to spend its own money for the object and not ask the public to foot the bills. This is the P. F. U. Rubber Co., of Durango, Colorado. To begin with, the company have already extracted some rubber and the writer of this article has had small samples and it is only fair to say that it looks well. Indeed, to hark back to earlier articles in THE INDIA RUBBER WORLD, it will be remembered that one complaint that we made concerning other companies was, that while they were offering stock for sale, we, at least, could get no samples of the rubber that they claimed to be

CAMP PINGUAY—RUBBER SHRUB ARRIVING.

producing. A description of the Durango company's plant and of their wish to cultivate the plant on otherwise waste lands rather than to make use of sparsely covered wild areas of it is exceedingly interesting. Extracts from a letter from Mr. E. C. Dunbar, the manager of the company, are therefore appended.

"If you would come out here you would find the 'pinguay' or Colorado rubber plant, a sample of which you have in your office, growing wild somewhat sparsely, on large areas in this and adjacent states. You would see as we do that any attempt to build up a large industry from the gathering of the wild plant would be an impossibility; you would see, however, that in certain places the plant has rapidly increased in the last few years, and you would note that by far the most important work we have in hand is to determine the conditions under which the plant may be increased and fertile seed produced. You would see for days as you ride through these Rocky Mountain states, enormous areas of land lying waste and destined to remain waste until some crop can be found that requires little cultivation, withstands all temperature, and requires practically no water.

"You would note that the 'pinguay' weed is exactly such a plant and, if a fertile reliable seed can be obtained, that



FACTORY OF THE P. F. U. RUBBER CO.

the area upon which the plant could be grown would be enormous. I do not think I would be exaggerating at all if I were to say that the waste land of the Rocky Mountain states could readily be made to produce sufficient gum to supply the entire American market, if this seed problem was solved. As you know, the last Congress gave us the use of some 5400 acres of this arid land, upon which to experiment. This experimental farm is on the Fort Lewis *mesa*, 15 to 20

CAMP PINGUAY—MANAGER'S TENT.

miles south west of Durango, and is admirably adapted for the purpose envolved. We have established Camp Pinguay, from which I am writing, as farm headquarters, and have as farm superintendent, Mr. W. M. Peterson, for many years a superintendent in the Indian service. We have employed the Navajo Indians in the gathering of the roots; we have experimented with Mexicans and intend to try Japanese. You will appreciate that at present the cost of the labor in gathering the roots is by far the largest item in the ultimate cost of the rubber gum, and that when this becomes a farmers' product, the labor will be as inconsiderable as the labor connected with harvesting alfalfa.

"The process is extremely simple and is in charge of Mr. Henry Konker as superintendent. The process follows closely along the lines of linseed oil extraction, with which work Mr. Konker has been identified since its inception. While further experiments will undoubtedly lead to the production of a better gum, the gum we are now able to produce has a very high amount of vulcanizing power and a small ad-

CAMP PINGUAY—BAILING WEED.

mixture of it renders the rubber made from reclaimed rubber unusually tough and elastic. It has a very much higher vulcanizing power and is a very much better gum in every way, than any Guayule gum that the writer has seen.

"To sum up, this company aims to produce a seed of the pinguay weed, which farmers can use; its aims to evolve a satisfactory process for cheaply extracting the gum; it hopes by selection and hybridization to improve the quality of the pinguay gum and increase the yield per plant; it also hopes to extend the area within which the pinguay grows, so that instead of it being grown in no lower altitude than 6000 elevation, as is the case in its wild state, that it may be made to grow at a much lower altitude. It hopes ultimately to make the United States independent of all foreign countries for its supply of crude rubber gum."

MORE RUBBER COMING FROM BOLIVIA.

THE output of rubber from Bolivia is again showing an increase. Below are given figures for nine years, derived from official sources. For a few years, after the production in the Acre district became important, the figures fluctuated, the political troubles there sometimes checking the export of rubber. For the last two years covered by the table the Acre production has not been included, as that district now belongs to Brazil. As will be seen, the 1904 output exceeded that of the previous year by more than 500 tons:

	Pounds		Pounds.		Pounds.
1896	2,509,566	1899	4,708,000	1902	4,186,585
1897	3,683,275	1900	7,691,728	1903	*a* 2,906,274
1898	6,943,100	1901	7,623,138	1904	*a* 3,453,182

[*a*—Excluding the Acre district.]

The government of Bolivia is constantly in receipt of petitions for grants of rubber concessions. In the department of La Paz 51 such petitions were registered in the latter half of 1904 and 84 during 1905. In the department of Cochabamba 31 petitions were filed in the first half of 1905. Altogether, these related to 38,769 *estradas* (groups of 150 *Hevea* rubber trees).

The yield of rubber per tree in the Amazon regions has always been a matter of uncertainty. It may be of some interest in this connection to note that an official report on rubber production on the rio Beni for one year shows 459 *estradas* to have been worked by 461 *picadores*, the production being 309,599 pounds. This would average 671½ pounds for each worker during the year, and 674½ pounds per *estrada*. Assuming 150 trees per *estrada*, the average per tree would be a trifle less than 4½ pounds, but it is understood that very many *estradas* have less than the legal number of trees.

UNION MADE POLICE RUBBER GOODS.

THE following extract from the New York official *City Record* relates to a pretty good sized order. It may be of interest, also, on account of the reference to union labor:

Ordered, That the proposal of HENRY V. ALLIEN & Co. of No. 734 Broadway, Borough of Manhattan, to furnish caps with detachable cloth caps and rubber cap covers with cape for the use of roundsmen patrolmen and doormen of the Police Department, for the sum and price as follows, be and is hereby accepted:

Caps with detachable cloth cape, each..... $2.65
Rubber cap covers with cape, each..... .75

Such caps and rubber cap covers to be made conformable with the sealed sample on deposit in the bureau of clothing and equipment, and to be strictly union made throughout, each and every cap to contain the union label.

THE Balgownie Rubber Estates, Limited, own the Balgownie rubber and coffee estate in Selangor, Malay States. Between October and March 3200 *Hevea* trees, the oldest not over 5½ years, were tapped lightly and yielded 1740 pounds of dry rubber. During the current business year it is hoped to obtain about 6150 pounds from 7150 trees, some of which will be 6½ years old by next March.

THE United States consul general at Rio de Janeiro, Brazil, reports an increasing import of rubber from that port. The variety is "Mangabeira," the total imports of which, from the whole of Brazil, were smaller in 1905 than in the year previous.

LITERATURE OF INDIA-RUBBER.

HEVEA BRASILIENSIS, OR PARA RUBBER. ITS BOTANY, CULTIVATION, Chemistry, and Diseases. By Herbert Wright, A.R.C.S., F.L.S., Controller, Government Experiment Station, Peradeniya, Ceylon. Second Edition. With plates and diagrams. Colombo: A. M. and J. Ferguson. 1906. [Cloth. 8vo. Pp. XIII+179+plates. Price, at Colombo, 7 shillings.]

THE rubber planting interest cannot fail to be benefited by the work which Mr. Wright, with commendable painstaking, has done in bringing out this book. He has not assumed to offer a complete compendium of knowledge regarding the rubber species to which his work relates, nor yet an infallible planters' manual. But he has brought together very many facts, a study of which permits generalizations of value to be made, though as a rule the author leaves the generalizing to be done by the reader. As an illustration, instead of going on record as to the normal average yield of a *Hevea* tree under given conditions, the author presents detailed results obtained on a number of plantations in Ceylon, from trees of different ages, under various methods of tapping. The figures given appear well authenticated, and the inference appears not unreasonable that if certain yields are derived from one plantation, something similar may be expected from other trees, similarly circumstanced.

Mr. Wright, as a member of the government scientific service in Ceylon, has availed himself of an opportunity for an extensive personal observation of rubber trees under cultivation in that part of the world. Beyond this he has depended upon the work of other investigators. But his book gives evidence of an industrious consultation of authorities, whose statements are referred to so definitely that the reader, if he wishes, may easily consult the original sources of information.

Beginning with a history of the introduction of Pará rubber in the Far East, this book sketches the development of its cultivation until it has reached very large proportions. The climatic conditions favorable for *Hevea* are discussed; questions of soil and fertilizing; methods of planting and the care to be given to the young trees; tapping operations and implements; how and when to tap, and on what part of the tree, and many related questions. There is a chapter on the physical and chemical properties of latex, followed by one on the production of rubber from latex. The drying of rubber is discussed, and its physical and chemical properties, the purification of rubber, etc. The vulcanization and uses of rubber are discussed, to enable the reader better to appreciate what follows in relation to plantation rubber as compared with "wild" rubber, analyses of different rubbers, and such like topics.

The diseases of the Pará rubber tree take up a chapter, and the book ends with estimates of a number of Ceylon planters on the cost of growing rubber. These appear to have been prepared with much care, but the author does not commit himself, and nowhere in the volume is the question of profits dealt with. Mr. F. J. Holloway's estimate for a rubber plantation of 300 acres, to the end of the sixth year, is $23,350, or $77.83 (gold) per acre, exclusive of cost of the land, about $16.67 per acre.

Mr. Wright's book has been considerably enlarged and broadened in this second edition, and the excellent half tone illustrations have been doubled in number. We may perhaps best conclude this notice by quoting from the author's preface: "The whole industry, especially as far as the producers are concerned, is in its infancy, and though our knowledge regarding the function of the latex, the effect of removing cortical tissues and latex from the plant, the methods of extracting latex, yields obtainable, and the production of rubber from latex, is considerable, one must be prepared to give up present day ideas and commence work on new lines, whenever the latter has been shown to be worthy of adoption." The book before us would be of value, if it did no more than suggest to planters what is involved in the rubber cultural proposition.

IN CURRENT PERIODICALS.

DER neue Kautshuk baum *Euphorbia elastica*. By Dr. Rudolf Eudlich. [Description of the Mexican "Yellow tree" as a rubber producer. See THE INDIA RUBBER WORLD, February 1, 1906—page 148.]=*Der Tropenpflanzer*, Berlin. X 8 (Aug. '06). Pp. 525–531.

Wie Verveilfältigt man den Karetbaum (*Ficus elastica*). By Prof. A. H Berkhout. [Multiplication of the *Ficus elastica* in the Dutch East Indies by means of marcottage.] *Der Tropenpflanzer*, Berlin. X-8 (Aug '06). Pp. 505–516.

Les Essais de Culture de Caoutchouc dans le Bas Congo Français. By Berthelot du Chesnay. [Relates to *Manihot*, *Castilloa*, *Kickxia* and *Hevea*, showing the superiority of the latter.]=*Journal d' Agriculture Tropicale*, Paris. VI–61 (July 31, '06), Pp. 195–199.

NEW TRADE PUBLICATIONS.

UNDER the title "Some Comments on Air Brake Hose," BOSTON BELTING CO. issue a brochure of much interest in relation to a report on tests of air brake hose presented at the June convention of the Master Car Builders' Association, pointing out wherein such tests might have been of more value if conducted on a different basis. [3½″ × 6″. 12 pages.]

THE IMPERIAL RUBBER CO. (Beach City, Ohio) issue a well got up and interesting catalogue of Druggists' Sundries, together with bath caps, sponge bags, and the like. It is their Catalogue No. 5. [5¼″ × 7⅜″. 32 pages.]

ALSO RECEIVED.

THE Bissell Carpet Sweeper Co., Grand Rapids, Michigan.=[Bissell's "Cyco" Bearing Carpet Sweeper.] 16 pages.

Ardrey Vehicle Washer Co., Rochester, New York.=Ardrey Vehicle Washer. 10 pages.

A. G. Spalding & Brothers, New York.=Spalding Catalogue of Spring and Summer Sports. 1906. 130 pages.

Hopewell Brothers, Boston.—Automobile Fabric Supplies. 16 pages.

The Xylotite Manufacturing Co., Cincinnati, Ohio=Xylotite Pulleys. 56 pages.

Dr. H. P. Coile, Knoxville, Tennessee.=The Coile Bath Tub Described and Illustrated. 16 pages.

The Stamford Rubber Supply Co., Stamford, Connecticut.=Stamford Substitutes 8 pages.

The Rubber Chemical Co., Limited, Bermingham, England.=Concerning Nantusi [a vulcanizing agent and preservative]. 8 pages.

Joseph Dixon Crucible Co., Jersey City New Jersey=Unions for Steam Pipes. [With points on the use of graphite.] By W. H. Wakeman. 19 pages. A Concise History of Lead Pencil Making. 8 pages.

The Motz Clincher Tire and Rubber Co., Akron, Ohio="The Motz Club." [Descriptive of Motz tires; issued from New York selling agency.] 16 pages.

The McIlroy Belting and Hose Co., Chicago.=Facts About Rubber-Ite Belting. 16 pages.

OBITUARY.

GEORGE HENRY FORSYTH, for many years a director and assistant manager of the Boston Belting Co., died on September 6 at his home in Brookline, a suburb of Boston, after an illness of over two and a half years. The end, however, came very suddenly.

Mr. Forsyth was born November 27, 1854, in Brookline, being the son of William and Jane (Bennett) Forsyth. The father, born in Ayrshire, Scotland, was a son of John Forsyth, a captain in the British Army, and a member of a family whose history has been preserved for many centuries. For the quarter of a century before his death (in 1860) William Forsyth was connected with the Boston Belting Co., as were three of his sons after him, including James Bennett Forsyth, the present general manager.

GEORGE H. FORSYTH.

George H. Forsyth became connected with the rubber company and continued active in affairs thereafter until forced by declining health to devote less attention to business. He traveled extensively in the interest of the company and was well known to many prominent business men throughout the United States, by whom he was highly esteemed.

Personally, George Forsyth was wonderfully attractive. Of medium height, with a well knit figure, dark eyes, regular features, and thick wavy irongray hair, he was always a striking figure, and withal a manly one. He was alert, capable, exceedingly businesslike, and up to the time that his last illness laid hold of him possessed of a cheery manner and brilliant smile that acted as a tonic on all about him. The disappointment and sorrow of his brother, Mr. James Bennett Forsyth, who had made him assistant general manager and who had planned to eventually turn over much of the detail of the great business to him, in this disaster to his fond hopes, may be imagined. The strong hold that the late Mr. Forsyth had upon the trade was abundantly shown by the many telegrams and letters of condolence sent to his mourning relatives and by the magnificent floral offerings that came as last tributes of respect and affection.

At a special meeting of the executive committee of the New England Rubber Club, in Boston, on September 7, the following resolutions were passed in relation to the death of Mr. Forsyth, and a committee was appointed to attend the funeral services, as a mark of respect to its late member:

Whereas, God in His infinite wisdom has taken from us our friend and fellow member, George Henry Forsyth, we, representing the New England Rubber Club, hereby adopt the following resolutions:

Resolved, That in the death of Mr. Forsyth, our Association has lost one of its most highly esteemed and beloved members.

Resolved, That the rubber industry has been deprived of one of its most respected and valuable members—kind and affable to all, honorable in his dealings, and always a friend to those in trouble. Associated for many years with a large and successful enterprise, widely known and highly esteemed, his taking away has left a deep regret, his memory will live with us always.

Resolved, That we extend to his family our appreciation of his high character and our great sympathy in their loss.

ALEXANDER M. PAUL, President.
ARTHUR W. STEDMAN, Vice-President.
FREDERICK H JONES, Treasurer.
HENRY C. PEARSON, Secretary.
ROBERT L. RICE, Assistant Secretary.

Funeral services were held on Sunday, September 9, at St. Paul's church, Brookline.

BOSTON, September 11, 1906.

New England Rubber Club,
Henry C. Pearson, Secretary,
New York, N. Y.

MY DEAR MR. PEARSON: In behalf of the family, I wish to express to the officers, executive committee, and members of the New England Rubber Club our thanks for the beautiful floral tribute sent for my brother, George H. Forsyth.

We also deeply appreciate the kind words and expressions of sympathy contained in the resolutions prepared and adopted by the Club.

Such kind and thoughtful consideration has touched us all deeply.

With much gratitude, I remain, Sincerely yours,

JAMES BENNETT FORSYTH.

* * *

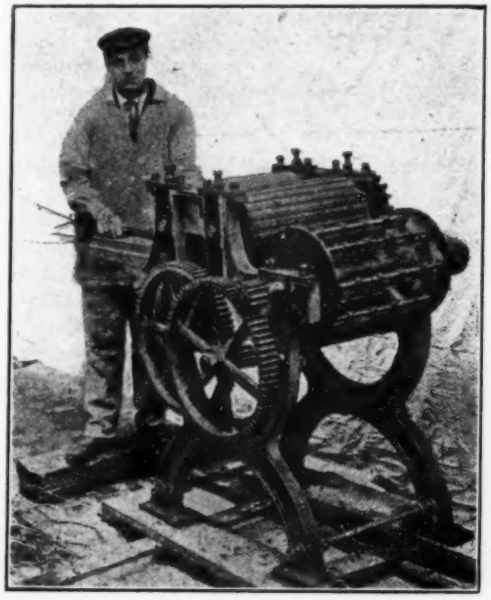
HENRY KEENE, who for three years was secretary of and a director in the Rubber Goods Manufacturing Co., died in New York on September 9, after having been confined to a room in the Holland House as a result of a cold contracted at the time he was rescued from a burning building last year. He was a brother of James R. Keene, the financier and turfman, born in England and taken by his parents to California in 1853; educated at Williams College; for some years on the Springfield (Massachusetts) *Republican;* in a banking house in Paris; and later in America held many positions of trust, such as that of secretary of the Equitable Gas Co., in New York. He joined the board of Rubber Goods Manufacturing Co. with the advent of the so called "Keene interest," in 1903, and as such became a director in a number of the subsidiary companies.

A DEADLY GOLF BALL.

TREASURER F. C. HOOD, of the Hood Rubber Co., was witness of a strange event last week, the decapitation of a flying bird, by a golf ball. He was playing a match with R. A. Leeson, and that gentleman had just finished his swing of the club at the fourth tee, and both were watching the course of the somewhat highly driven ball, about thirty yards from the tee, when they were surprised to see the ball strike a bird in full flight. The head was decapitated from the body of the bird just as cleanly as though a knife were used. The ball continued for more than 100 yards. Though a golf ball has been the cause of some remarkable happenings, members of the club were surprised when told of the affair, for they had no idea that there was such a carrying power to a golf ball.—*Boot and Shoe Recorder.*

RUBBER DECORTICATING MACHINE.

SOME machines used in the Congo country of late for decorticating rubber yielding *lianes* or creepers have developed a very satisfactory degree of efficiency. One such machine, illustrated herewith, and made under the patents granted to Félicien Michotte, an engineer of Paris, was designed primarily for use on vines of the *Landolphia* species, but it has proved equally applicable to the extraction of "root rubber," or even to working up of young Ceará rubber plants. It has four crushing rollers, about 10 inches in diameter, which receive the butts of the vines or brush, and split and flatten the wood. Following these rollers is a kind of drum formed of ten stout rods, upon which, as axles,



little claw hammers hang. When the drum is rapidly turned, these claws are thrown out by centrifugal force, so that they rapidly hammer and tear the bark from the crushed stems.

The machine, set up, weighs a ton, but it can be taken to pieces, none of the parts weighing over 200 or 300 pounds. Thus it can be easily transported to distant plantations; and when set up, it requires no special foundation or underpinning.

The capacity of the decorticator is something like a ton of stems a day, yielding about 600 pounds of bark. The illustration is derived from *Le Caoutchouc et la Guttapercha*, of Paris.

RUBBER RECLAIMING FOR RUSSIA.

TO THE EDITOR OF THE INDIA RUBBER WORLD: It is well known to you that about 8000 tons of old rubber boots and shoes are exported yearly from Russia to America. On March 1 last (old time) an export duty of £10 a ton was laid upon these, making a total revenue of about £80,000 a year.

Let me suggest that a factory be built in Russia to reclaim this stock, since new rubber may be shipped duty free.

I learned in America that the machinery for such a factory would cost £6000; add to that the cost of plant and buildings, which would be about £5000 to £6000, making a total of £11,000 to £12,000.

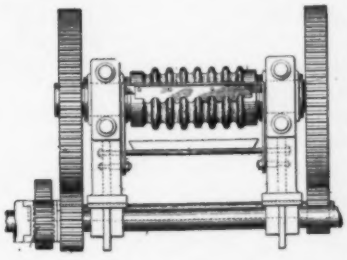
Say that we could work up 3000 tons of old stock a year, we could thereby save £30,000 in duty, leaving a clear profit of £18,000 for the first year. In America these old rubber boots and shoes now cost up to 9 cents a pound, while they only cost 5¼ cents in Russia. Since these old rubber boots and shoes would cost us so much less than the American rubber factories, we should be able to sell the new rubber to them at an advantage. A. B. N.

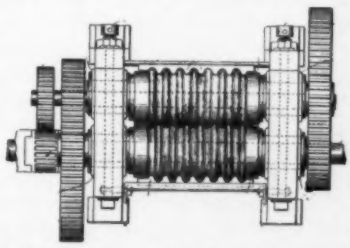
Odessa, Russia, July 21, 1906.

[THE above communication is of much interest. A practical side is given to it by the fact that not a little reclaimed rubber is now produced in Russia, for their own consumption, by the two great factories at St. Petersburg and Riga. But how does our correspondent know that reclaimed rubber could be exported from Russia duty free? There is no such material exported now, and this may explain its absence from the tariff schedules, but a country which taxes the exports of a raw material, such as scrap rubber, might be expected to add to the taxing list reclaimed rubber so soon as the trade in this commodity became important.—THE EDITOR.]

NEW WARMING AND MIXING MILL.

THE illustrations show two views of what is designed to be an improvement over smooth roll warmers and mixers. Described very briefly, the rolls are heavily grooved, not like "cracker" rolls, but more like the steel rolls used in iron work. That is, the ridges and grooves run around the circumference of the roll at right angles to its length and are arranged to mesh. As in an ordinary mixer one roll runs faster than the other, and the contention of the inventor is that by having greater mixing surface in small compass he not only increases the friction but is able to mix very much more stock. A rather curious point that he brings out is that, on account of the difference of speed of the rolls at the periphery and at the base of the groove-angles, the rubber is worked at a different speed in the grooves than it is on the ridges. In other words, the kneading is much more effective and quickly done. If this is the case one would imagine that the rolls might be difficult to cool unless the water chamber were exceedingly large. Whether or not the invention is practical it is impossible to say without test. It is, however, interesting to see any attempt at variation upon the old time mixing mill. This machine is patented by C. F. Obermaier, Yonkers, New York.





UNITED STATES RUBBER CO. IN EUROPE.

THE organization is announced, in London, of a company, styled William Symington & Co., Limited, with £500,000 capital paid in, the shares of which are all held by the United States Rubber Co. The managing director is William Symington, who has long been engaged in the crude rubber trade in London and Liverpool. The other directors are his brother, Harry Symington, William H. Blackwell, and three officers of the United States Rubber Co.: Samuel P. Colt, president; Lester Leland, second vice president; and John J. Watson, Jr., treasurer. The new company's permanent offices will be at 22, Fenchurch street, London, and 20, Castle street, Liverpool.

The new company will handle the European business of the General Rubber Co., controlling the purchase of crude rubber for the United States Rubber Co. and the affiliated manufacturing concerns. In addition to the offices above mentioned, William Symington & Co. will have charge of the crude rubber buying agencies established by the General Rubber Co. last year at Hamburg, Antwerp, Havre, and Bordeaux. The new company will handle all the African rubbers required by the United States Rubber Co., and, it is understood, will finance the purchases of Pará rubber for the United States company, which, though imported direct at New York, have always been paid for through London. The Symington company will also engage in supplying crude rubber to the British and Continental trade. The new corporation dates from September 1, 1906.

For some time past the European selling dépôt of the United States company has been conducted under the style United States Rubber Co., Limited, at 47, Farrington street, London. This has control of the sale abroad of the parent company's rubber footwear products. During the past summer an additional selling branch has been organized—the Anglo-American Rubber Co., on Holborne viaduct, London, for the mechanical and miscellaneous products of the United States company, and particularly of its important branch, the Rubber Goods Manufacturing Co.

The Messrs. Symington named above have been members for some years of Alden, Symington & Co., of London and Liverpool, which firm has been succeeded lately by A. H. Alden & Co., Limited, as reported on another page.

VOLTAX, AN INSULATING COMPOUND.

IT is apparent that an important demand has been developed for the insulating compound now marketed as "Voltax." Although the name is new, it is understood that the material has been the subject of experimentation for several years, and it probably has been sold at some time under a different name. The preparation is now controlled by the Electric Cable Co. (New York), organized in the early part of this year. Some of the most important railway companies are buyers of the product, including the New York Central and Hudson River, the latter in connection with the electrification of the approaches on their lines to New York city. Street railway lines are also finding use for Voltax, and it is being adopted for house wiring and like purposes; it is also used as a waterproof paint.

The formula for the Voltax compound is not mentioned. Among the advantages claimed are that it retains its elasticity and insulating properties for a long time; is impervious to weather conditions; is not subject to chemical change; is proof against water, acids, and alkalies; is exceedingly flexible; can withstand a higher voltage test than any rubber insulation; has withstood higher potential, insulation, resistance, and melting point tests than any other compound; does not affect copper, and hence the tinning of the copper is unnecessary; and it is cheaper than the ordinary rubber insulation. If these claims can be substantiated, the new compound would appear to have a wide field before it.

The company above named, in addition to Voltax, manufacture wires insulated with the solid compound, or by means of taping.

BREAKFAST FOOD RUBBER.

FOLLOWING the prediction of Professor Dunstan before the British Association that synthetic rubber will yet become a reality, not a little interest is attached to an invention lately patented by a British inventor who hopes to "revolutionize" the rubber industry in another direction. His idea is to make "artificial rubber" from grain. Whereupon the Montreal *Standard*, in view of the importance of grain production in Canada, points out the new source of wealth in the Dominion which would result from the success of the British invention. The *Standard* says: "Visions of automobiles and bicycles with tires made of wheat, golf balls that once were kernels of maize, pavements of barley, and linoleum that might have been rye bread, give a touch of Alice in Wonderland to the invention that is decidedly humorous. But nevertheless the invention is thought so well of that a syndicate of capitalists interested in tire manufacturing in the Old Country have offered the fortunate inventor £250,000 for his patent rights."

The proposed new substitute for rubber is obtained by treating any cereal with phyalin to turn the starchy matter into dextrose, another chemical being used to check fermentation at any desired stage. Thus artificial rubber may be made in various grades suitable for tires, golf balls, linoleum, liquid waterproofing solution, and so on. The *Standard* hears that the inventor will shortly visit Canada for the purpose of arranging for supplies of grain in large quantities for the new demand.

"Although the inventor believes that he may be the means of increasing the price of food in England, he has been thoughtful enough to provide against any danger of famine, for he states that the new rubber can be made into a reserve food supply. In the event of any shortage in edibles the substance can be boiled and reconverted into food. A satirical person might suggest that not only has the inventor found a substitute for rubber, but also a means whereby England's bugbear of famine, in the time of war, may be set at rest."

W. H. ELLIS, of New York, who not long ago went to Abyssinia to promote a commercial treaty between that country and the United States, and was created Duke of Hawash by King Menelik, has been visiting Mexico with a view, it is reported, to exploiting another guayule rubber proposition. Ellis claims concessions in Abyssinia for lands on which there is rubber.

NEWS OF THE AMERICAN RUBBER TRADE.

MERGER OF TWO RUBBER COMPANIES.

THE Ajax Standard Rubber Co. (New York) and the Grieb Rubber Co. (Trenton, N. J.) have been consolidated, the amalgamation taking effect from September 10, 1906. The newly formed concern is known as the Ajax-Grieb Rubber Co., and eventually will have its entire manufacturing plant at Trenton while the executive offices and warerooms will be located on upper Broadway, New York, in a building now in course of erection. For some time, however, Ajax tires will continue to be manufactured at the New York plant, in East One Hundred and Sixth street. Important additions are to be made to the Grieb factory in Trenton, and the new company will continue the manufacture of the lines other than tires marketed hitherto so successfully by the Grieb company. The Grieb company succeeded the old Mundell Rubber Co. (Trenton) and were incorporated in June, 1899, since which time their business has experienced a steady growth. The Ajax Standard Rubber Co. was incorporated in November, 1905, to manufacture tires, the capital being supplied by members of the American Motor Car Manufacturers' Association. It is proposed now, with the enlargement of the company's facilities, to solicit business from the general tire buying public as well as supplying the members of the association. Horace DeLisser, who has been president of the Ajax company, is the head of the new organization. William G. Grieb is vice president; Harry Grieb, treasurer; and C. H. Oakley, secretary and factory manager. The last three named have been the principal officers of the Grieb company. Albert S. LeVine, formerly western sales manager of the Maxwell-Briscoe Motor Co., has become connected with the new concern in the sales department and will travel extensively for them.

RUBBER HEEL PATENT SUIT DECIDED.

THE suit of Frank W. Whitcher & Co. (Boston) against the Consumers Rubber Co. (Bristol, R. I.), in the United States circuit court in Rhode Island, alleging infringement of the design patent No. 28,912, issued June 21, 1898, to Heber C. Peters, resulted in a decision in favor of the plaintiff and a perpetual injunction against the defendants making and selling rubber shoe heels in imitation of the design covered by that patent. The Consumers company marketed heels lettered "Shamrock", whereas the plaintiff's heels were labeled "Velvet", but it was held that the two designs had the same general appearance and that it was not necessary that the patented thing should be copied in every particular to constitute infringement.

CANADIAN NATIONAL EXHIBITION.

AT the resent twenty-eighth annual Canadian National Exhibition at Toronto, auspiciously opened by Sir William Mulock, chief justice of the exchequer division of the high court of justice, there was much to interest the shoe trade. There is room here, however, to mention only the exhibits of the rubber trade. In the center aisle of the Manufacturers' building was to be found the exhibit of the Canadian Rubber Co. of Montreal, Limited, one of the largest and most effectively arranged in the whole structure. Here were to be seen rubber in the crude state as it was imported and in all the stages of the progress of manufacture, including finished articles of all classes manufactured by this important company. But the chief attraction, of course, to the shoe trade, was the splendid display made of rubber footwear. The Canadian company had also another large exhibit devoted to automobile and carriage tires, covers, etc., in the Transportation building. Another rubber exhibit of special interest to the shoe trade was that of the Berlin Rubber Co., Limited, also situated in the Manufacturers' building. Here was an attractive arrangement of the footwear products of the company named in connection with masses of rubber crude and in the different stages of manufacture. The Dunlop Tire and Rubber Co., Limited, manufacturers of general rubber goods, made an extensive display of their products of mechanical goods and tires, and also an extensive exhibit of revolving rubber heel.

NEW FACTORY OF THE DURHAM RUBBER CO.

THE new factory of the Durham Rubber Co., Limited (Bowmanville, Ontario) [see THE INDIA RUBBER WORLD September 1, 1905—page 420] was recently opened with a public demonstration and banquet, attended by manufacturers from Toronto, Montreal, Hamilton, and other centers. Addresses were made by Mr. James Robinson, president, and Mr. John J. McGill, vice president, and by representatives of the company in various Canadian cities. After the banquet a procession of employés was held, the directors of the company, and the town council following in carriages.

* * *

THE buildings in Bowmanville formerly occupied by the Durham Rubber Co. for manufacturing purposes, before removing to their new building, were almost totally destroyed by fire on September 5, with their contents. The buildings were occupied for storing raw materials and by a lot of machinery, besides which the factory compounding room had not been removed to the new plant. It was in the latter room that the fire had its origin. The loss has been estimated at about $35,000, mostly covered by insurance.

HOT WATER BOTTLE BURST.

IN Pittsburgh James A. Miller and wife, Agnes, have entered suit against the Shipley-Massingham Co., for $6000 damages, claimed to have been sustained by Mrs. Miller through the bursting of a hot water bottle. The Millers say they bought the hot water bottle from H. Dodson, a druggist of No. 321 Larimer avenue. It was guaranteed to give perfect satisfaction. But when Mrs. Miller filled the vessel and put it on her stomach to relieve pain it burst, and the water scalded her so badly she had to expend $500 for medical attention, as well as undergo much suffering. She claims the material of which the bottle was made was defective.

THE AUTOMOBILE SHOWS.

AS mentioned already in THE INDIA RUBBER WORLD, the New York automobile show under the auspices of the Automobile Club of America and the American Motor Car Manufacturers' Association, is to be held during the first week in December, at the Grand Central Palace. There are to be, as

usual, two New York shows. That under the auspices of the Association of Licensed Automobile Manufacturers will be held, as last year, at Madison Square Garden. The dates are January 12–19.

AN EFFICIENT SELLING STAFF.

THE illustration at the foot of this page is based upon an excellent photograph of the officials and selling force of the Consolidated Rubber Tire Co. (New York). The names of the gentlemen facing the photographer are as follows, reading from left to right: *Front line*—Frank A. Kissell, Frederick A. Seaman (secretary of the company), Van H. Cartwell (president of the company), Robert F. Houston, Harry E. Doty. *Rear line*—George D. Edwards, Edmund S. Roberts, Stanley F. Hall, Frank E. Holcomb, Howard S. Cox, John Glenn, Paul D. Beach, F. A. Oatman.

TRADE NEWS NOTES

THE B. & R. Rubber Co. (North Brookfield, Massachusetts) opened their office on September 5. On that date the first instalment on the stock subscriptions was collected, and work is being pushed on the factory buildings. Messrs. Charles Beebe and Thomas G. Richards, the heads of the business, have bought residences at North Brookfield.

=Mrs. Frances A. W. McIntosh, formerly advertising manager of the Standard Tool Co. (Cleveland, Ohio), and more recently connected with the advertising department of *Power*, New York, has taken charge of the publication department of the Norton Co., makers of Alundum grinding wheels, Worcester, Massachusetts.

=The cable from the United States to Alaska earned $24,000 in July, besides which the official despatches sent would have cost $12,000 at commercial rates. The increasing demands upon the cable will be met by the government by duplexing the cable. The cable ship *Burnside*, on going north for this purpose, carried 200 miles of new cable, made at New York, for the extension of the line.

=Ohio Rubber Co. (Cleveland) have filed a certificate of increase of capital stock from $175,000 to $225,000.

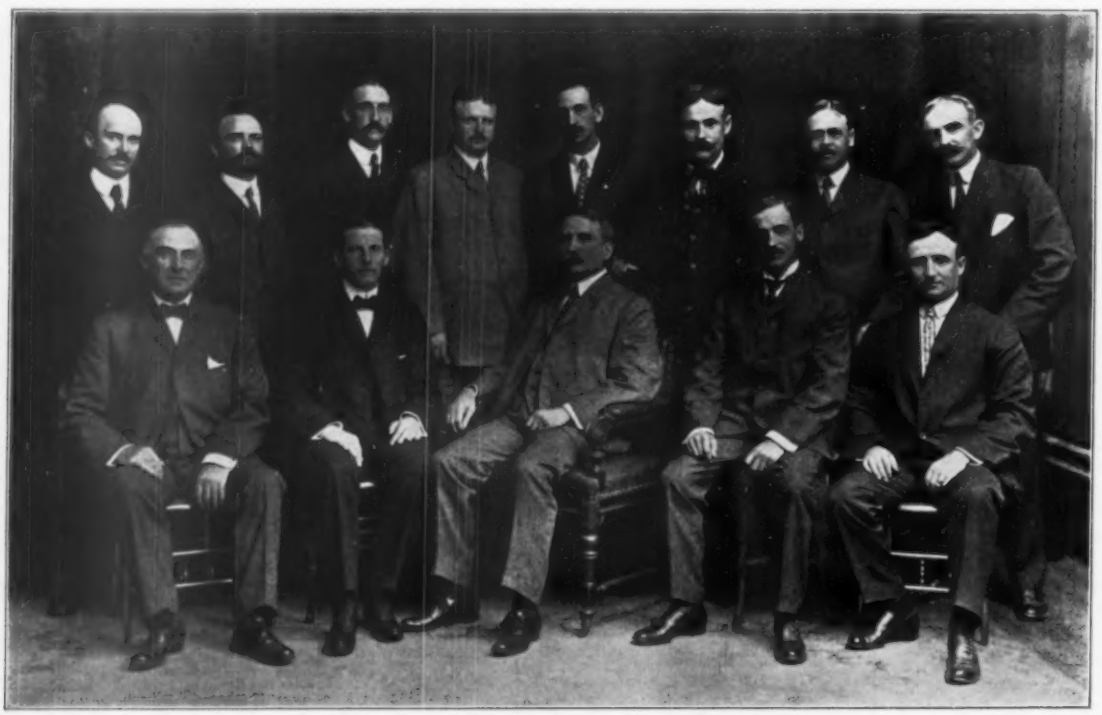
=The annual meeting of managers and salesmen of the Fisk Rubber Co. (Chicopee Falls, Massachusetts) this year lasted a week and ended with a day's outing, on land and sea, which embraced a fine clambake in a grove near Springfield. Representatives of the company from all parts of the country made favorable reports in regard to the company's tire business,

=Michelin Products Selling Co., Inc. (New York) say in their trade announcements: "Sixty per cent. of all the tires sent to our repair works have suffered more or less from under inflation. Of these, a good proportion are completely ruined."

=Schedules in assignment of the Thermalite Co. [see THE INDIA RUBBER WORLD, September 1, 1906—page 405] show liabilities of $16,650, nominal assets of $10,700, and actual assets of $1014.

=Oscar L. Ellison, No. 308 West Forty-seventh street, New York, was arrested on the complaint of Frank C. Howe, who alleged that he had invested $1300 in the former's business of selling puncture fluids for automobile tires, on account of false representations, and was afterward unable to get his money back. The police stated that several others had given money to Ellison under similar circumstances.

=F. & G. Pflomm have leased from the plans the building to be erected at No. 1741 Broadway, New York, for a term of years, to the Pennsylvania Rubber Co. (Jeannette, Pa.), for their tire depot.



OFFICERS AND SELLING FORCE OF THE CONSOLIDATED RUBBER TIRE CO.

=There was a recent conference at Akron of the officers and local sales managers of The B. F. Goodrich Co. and the branch managers and traveling salesmen of the company. The tire branch was discussed in detail and plans adopted for the coming year. On the last day of the meeting the visitors were guests of the company at dinner, and the afternoon was devoted to golf and other sports.

=The Michigan Retail Shoe Dealers' Association in session at Detroit on September 6, resolved not to buy any more rubber footwear on the so called calendar or blanket rates. They say that in order to get goods at minimum prices they have been obliged to order goods early, and when the weather is not favorable to the trade, as last winter, and they are left with heavy stocks on hand, they get no consideration from the manufacturers. The Michigan dealers now propose to make their purchases as may be necessary.

=Fire at the asbestos factory of the H. W. Johns-Manville Co., at the foot of Thirty-ninth street, Brooklyn, on the evening of August 30, caused damage estimated at $100,000.

=A certificate of incorporation of the Commercial Cable Co. of Cuba has been filed in Albany, New York, with a capital of $100,000 to operate telegraphic communication between New York and Havana by way of Florida and Key West. The principal office is in New York. The directors are: William W. Cooke, Samuel S. Dickinson, George Clapperton, Albert Beck, Clarence H. Mackay, Albert B. Chandler, and Dumont Clarke.

=The Hadley Cement Co. (Lynn, Massachusetts) made an attractive display of their products at the recent National Shoe and Leather Fair, at Chicago.

=The L. Candee & Co. (New Haven, Connecticut), it is reported, are about to expend $46,000 in remodeling their factory buildings. Floors are to be lowered in some of the buildings and considerable steel construction used.

=The Syracuse Rubber Co. (Syracuse, N. Y.) have been incorporated under the laws of New York with $25,000 capital. Incorporators: Frank C. Howlett, of Syracuse; E. R. Rice, Buffalo, N. Y.; C. W. Barnes, New York aity.

=The Canadian Rubber Co. of Montreal, Limited, are reported to be planning important extensions to their plant, for which purpose they will utilize a tract of land purchased recently adjacent to their present buildings.

=Boston Woven Hose and Rubber Co. have declared a semi annual dividend of 4 per cent. on their common stock, payable September 15, instead of 2 per cent. as heretofore. There is $750,000 of 6 per cent. preferred stock and $450,000 of common stock.

=Stowe & Woodward, July 13, 1906, under Massachusetts laws; capital, $10,000. To manufacture mechanical rubber goods and proof cloth for the trade, at Brockton, Mass. Griswold Stowe is president and Frederick R. Woodward treasurer.

=John Royle & Sons (Paterson, New Jersey), who are so widely known to the rubber trade as makers of tubing and insulating machinery, are also manufacturers on an important scale of machinery in other lines. They have issued a new catalogue of their ruling machines, in connection with wood engraving, and rubber manufacturers desiring to have illustrations made for catalogues and the like may be interested in reading what is said in this catalogue on the advantages of wood cuts as compared with other kinds of pictures.

=The Wolverine Rubber Manufacturing Co., the incorporation of which was reported in the last INDIA RUBBER WORLD, are established at No. 237 Jefferson avenue, Detroit, Michigan, in a general jobbing business in all kinds of rubber goods; besides, they act as manufacturers' agents on lines which they cannot carry in stock. George E. Gable is president; David Craig vice president and treasurer; Oliver H. Joy, secretary and general manager.

=Herr Willy Tischbein, one of the directors of the Continental Caoutchouc and Guttapercha Co., of Hanover, and president of the Continental Caoutchouc Co., of New York, has arrived to be present at the Vanderbilt Cup races.

=At the annual meeting of the Westinghouse Air Brake Co., at Pittsburgh, on September 6, the regular quarterly dividend of 2½ per cent. was declared, and also two extra dividends, amounting in all to 7¾ per cent. for the quarter.

=The Pierce Cycle Co., September 13, 1906, under New York laws; capital, $300,000. Incorporators: G. N. Pierce, Percy P. Pierce, and C. Clifton. To manufacture bicycles, at Buffalo, N. Y. Percy P. Pierce, president of the new company, twice the winner of the Glidden Tour trophy, and son of the president of the George N. Pierce Automobile Co., announces that hereafter he will devote his attention exclusively to bicycles.

=The Hon. L. D. Apsley, president of the Apsley Rubber Co. (Hudson, Mass.) and the Rubber Manufacturing and Distributing Co. (Seattle, Wash.), visited the Pacific coast during the month, and while at Seattle entertained the employés of the Rubber Manufacturing and Distributing Co. at a banquet.

=In a report just issued to its stockholders by The Ohio Rubber Culture Co. (Canton, Ohio), it is worthy of note that the company, although less than two years old, has 1,000,000 rubber trees out and growing on its plantation, situated on the Isthmus of Tehuantepec, Mexico. The Minatitlan Contracting Co. of Minatitlan, V. C., Mexico, who are Mexican planters of over 10 years' experience, have charge of this company's development work.

=Justus D. Anderson has been elected president of the G & J Tire Co., and has gone to Indianapolis to take charge of the duties of that office. H. O. Smith, whom he succeeds, after having served as president of the G & J company for several years, will now devote more attention to his automobile interests, though remaining a director in the tire company. Mr. Anderson was at one time sales manager of the G & J company, before going to Hartford, where he has been of late a vice president of the Hartford Rubber Works Co. He has been succeeded in the latter position by V. B. Lang.

=Firestone Tire and Rubber Co. (Akron, Ohio) are marketing a "twin" solid rubber tire which has several advantages. One is that either half may be repaired or replaced without interfering with the other, and there is a positive and independent fastening for both shoulders of each half of the time.

=At the rubber shoe factory of L. Candee & Co. (New Haven, Connecticut) there has lately been reported a shortage of women employés. It appears that in New Haven, at least, young women are less attracted by work of this kind than formerly, and the management has been obliged to bring in Italian and Polish girls, who are being trained in the various branches of rubber shoe making.

=Incorporation papers were filed in Maine on September 12 for a company under the name Port of Para, with $17,000,000 capital authorized, none of which had been paid in. The papers were filed by The Corporation Trust Co., members of which concern fill the offices for the present. Information regarding the objects of the company was refused.

=The Biggs Boiler Works Co. (Akron, Ohio) are doing good work in supplying rubber manufacturers with vulcanizers. Not only are their customers found in their vicinity, but through New England, down in Pennsylvania, and in the far west.

=The Miller Rubber Co. (Akron, Ohio), manufacturers of druggists' sundries and rubber specialties, have enjoyed an exceedingly active trade of late, which showed no diminution even during the heated summer months.

=Colonel Frank E. Locke, of the Boston Rubber Shoe Co., mentioned a few months ago as having gone to the Pacific coast for the benefit of his health, has returned home greatly improved, and is in charge of the company's Factory No. 2.

=The Vinet detachable rim tire, brought into such prominence at the Grand Prix contest in Paris last summer, is to be manufactured for the American trade by the Hartford Suspension Co., who will also continue making the Truffault-Hartford shock absorber.

THE RUBBER FACTORY AT NORTH BROOKFIELD.

THE illustration on this page gives a view of the building which has been purchased by The B. & R. Rubber Co. (North Brookfield, Massachusetts), a new company the organization of which has been reported already in these pages. The building was formerly known as the E. & A. H. Batcheller shoe factory. It contains about 155,000 square feet of floor space and was up to a few years ago the largest shoe factory in the world. The building is of heavy mill construction and was fortunately built upon a rock, so that it is suitable for the heavy machinery which it is necessary to use in the manufacture of rubber goods. The company are putting in about 200 tons of machinery, all new and of the latest pattern. It is expected that the equipment will be ready for the manufacture of goods about November 1, when the company will begin making rubber heels, soles, horseshoe pads, mats, and matting, tubing and the like, with the idea of adding other lines within a few months. Mr. Thomas G. Richards is president of the company and Mr. Charles C. Beebe treasurer, their initials being used to form the name of the company.

PERSONAL MENTION.

MR. CHARLES C. EBERHART, for some time connected with the United States consulate general in the city of Mexico, has been appointed consul at Iquitos, Peru. This is the first time that an American consul has been stationed at Iquitos, which is becoming a port of increasing importance, on account of the exportation of rubber from there. Mr. Eberhart sailed for his post on September 15.

=Colonel Samuel P. Colt, president of the United States Rubber Co., returned early in the month from a protracted visit to Europe. His son, Russell Colt, and John J. Watson, Jr., treasurer of the United States company, returned on the same steamer.

NEW INCORPORATIONS.

AMERICAN Pen and Pencil Clip Co., August 31, 1906, under New York laws; capital $5000. To make metal and rubber goods. Incorporators: J. Fuchs, P. Cohen, and D. E. Goldfarb, all of New York city.

=Ajax-Grieb Rubber Co., September 11, 1906, under New Jersey laws; capital, $400,000. Incorporators: W. G. Grieb, Henry Grieb, of Philadelphia; C. H. Oakley, of Trenton; H. De Lisser, of New York.

=The Cushion Wheel and Tire Co., September 8, 1906, under New York laws; capital, $100,000. Incorporators: Edward Mitchell, No. 218 Hudson street, Syracuse, N. Y.; Thomas H. Ward, Syracuse, N. Y.; Edward D. Wood, Indianapolis, Indiana.

=The Atlantic Rubber Manufacturing Co., September 10, 1906, under New Jersey laws; capital authorized, $125,000. Incorporators: Leander J. Buckley, Glen Ridge, N. J.; Ernest L. Baldwin, No. 153 Monmouth street, Trenton, N. J.; Benjamin Shea, Portchester, N. Y.

FACTORY OF THE B. & R. RUBBER CO. (NORTH BROOKFIELD, MASS.).

THE RUBBER TRADE IN AKRON.

BY A RESIDENT CORRESPONDENT.

TO THE EDITOR OF THE INDIA RUBBER WORLD: Mr. Francis H. Holton during September celebrated the sixtieth anniversary of his connection with the rubber business. He came to Akron in 1887 to become superintendent of one of the departments of The B. F. Goodrich Co.'s factory, and has since remained here, and is now leading a life of leisure.

The Puncture Proof Tire Co. (Cleveland, Ohio), will erect a large factory in Akron for the manufacture of its tire, the invention of Godfried Knadler, formerly of Akron, and now being manufactured by the Stein Double Cushion Tire Co. Mr. Knadler was connected with the rubber department of the Whitman & Barnes Manufacturing Co. when he invented the puncture proof tire. About a month ago the Puncture Proof Tire Co. was incorporated, with $100,000 capital, for the manufacture of these tires. The new tire has no inner tube, and is claimed to require no attention after being put on an automobile, until cut to pieces or worn out.

Fearing that it may lose the branch of the Faultless Rubber Co., the city council of Ashland, Ohio, passed an ordinance opening a street to the company's plant in that city, which it has been fighting for the past three years. Recently a report was given out by the company that it was to merge its Akron and Ashland plants into one. The location of this plant has not been decided on, and both Akron and Ashland are bidding for it.

The Buckeye Rubber Co. are experiencing difficulty in securing concessions from the Akron council. The company have made arrangements for the erection of a large number of sheds adjoining their plant, and have asked the council to vacate a portion of the street on which the plant abuts and upon which to erect these sheds. The scheme has met a stumbling block in the way of damage claims which have been filed, amounting to $12,000.

Mr. H. S. Firestone, president of the Firestone Tire and Rubber Co., left recently for a six weeks' tour of Europe. He was accompanied by his wife.

Mr. Harry H. Replogle, department manager of the Canadian Rubber Co. of Montreal, was married on September 15 to Miss Gertrude Stone, the daughter of Mrs. Laura Stone, of Akron.

Thirty branch managers and traveling salesmen of The B. F. Goodrich Co. held a three days' conference, at the first of the month, with the local sales managers. The tire branch of the trade was the only one represented and discussed in the conference, and plans were laid for the coming year after suggestions were heard from the various managers and salesmen. It was announced after the conference that there will be no general changes in tires this coming season, except wherein improvements can be made in perfecting the present styles.

The Diamond Rubber Co. will send a small army of expert tire men to be in attendance at the Vanderbilt Cup races next month. There will be 52 men present, representing the company, who are expert tire repair men. The corps of Clifford B. Myers, who had charge of the corps of men sent by the company to the former Vanderbilt races and also who attended the Gordon Bennett races in France.

The Rubber Trading Co. (New York) will no longer have a resident representative in this city. I. C. Alden who has been the resident representative of the company in this city for a number of years has ceased to be connected with the company, and the trade will in the future be visited by R. B. Baird, vice president of the company.

The Williams Foundry and Machine Co. are enjoying a prosperous business in the rubber trade. Large orders have been filled for cores and moulds to be delivered to the Diamond Rubber company.

During the present month the Independent Tire and Rubber Co. was incorporated, with a nominal capital stock of $1000. The company was incorporated by attorneys of Akron, and after it is fully organized, it is reported, the capital stock be increased to several hundred thousand dollars.

Recently the Panama Crude Rubber Co. was organized in a similar way, the real organizers keeping in the back ground. It has been rumored among the trade that the two incorporations mean the formation of one large rubber company. The former was organized for the purpose, it is said, of securing leases on large rubber plantations, which will ultimately result in the company furnishing to the Independent Tire and Rubber Co. all of the crude rubber needed for its consumption.

Mr. Charles C. Goodrich, assistant general superintendent of The B. F. Goodrich Co., has been elected to the office of councilman at large in the city council. The members of the council agreed unanimously on Mr. Goodrich to fill the vacancy in the council.

Mr. F. G. Carnahan, of the Goodyear Tire and Rubber Co., is at the head of the United States Spirit Co., of Akron, recently incorporated with $115,000 capital. The company expects to manufacture denatured alcohol.

Mr. James A. Braden has resumed the position of advertising manager of The Diamond Rubber Co., which he resigned a year or two ago to enter another line of business.

On September 24 J. A. Johnston, E. A. Baldwin, and James Strictler filed suit in the Franklin county common pleas court against the Midgeley Manufacturing Co., of Columbus, Ohio, asking for the appointment of a receiver and that another election of officers or directors be held. The petitioners set up that Thomas Midgeley, as president of the company, is acting in the interest of the Rubber Goods Manufacturing Co., and that he has procured the election of men as directors who likewise work for the furtherance of the rubber company. It is charged that they have attempted to depreciate the stock of the company, with a view to buying it in at less than its real worth. John C. Squiers, in another suit, has also asked for the appointment of a receiver. An injunction is asked for, restraining any sale of shares of the Midgeley company to members of the rubber trust.

Mr. Strong Vincent Norton, assistant to C. C. Goodrich, of The B. F. Goodrich Co., was married recently to Miss Florence Lyon, whom he met while a student in the University of Chicago, where she was a teacher of botany.

Later.—The Faultless Rubber Co. will remove its Akron plant to Ashland and consolidate all its manufacturing there. The company's plant at Ashland will include the factory formerly occupied by the Pneumatic Horse Collar Company.

THE TEXTILE GOODS MARKET.

THE general trend of the market is said to be buoyant and it is thought that the fixing of the new price schedule about October 15 will not show any appreciable change from the prevailing list. A prominent authority recently published the following *résumé* of the cotton market:

"Conditions this season are such as to render the usual decline from early offerings less probable. There can be little doubt that the early movement will be heavy, for the reason that perhaps as much as 25 per cent. of the crop has already been sold at 10c. and over for early shipment, and therefore receipts will not be any pressure against the market. The increased warehouse facilities of the South, the more prosperous condition of growers as a class, and the efforts of the various organizations will all be in favor of a very conservative marketing of unhedged cotton, besides which we have not the least doubt in the world but that spinners of all nations are even now prepared, and are waiting for the season of big receipts to embrace what they may well consider the best opportunity likely to be presented during the season for obtaining supplies not only for the necessities of the current season but in many instances to supply their spindles during the coming year. This course of conduct has undoubtedly been suggested to them by the fact that while the commercial crop just marketed was the largest but one in the history of the trade the world's surplus was decreased nearly one-half during the season, and also that after the enormous takings of two years ago the takings of last year indicated a reaction, which, during the present season, is likely to be followed by a renewal of the expansion naturally attending the increase in population and the development of new markets."

The spot situation is strong but there is little or no disposition to deal in futures, at least on the part of the general public.

ADDITIONAL TRADE NOTES.

MR. WEBSTER NORRIS, who is well known as one of the safest and best equipped of the rubber chemists and superintendents, has located permanently in New York. He will devote himself to laboratory work, acting as counsel for rubber manufacturers who have compounding, manufacturing, or testing problems of any description with which to deal.

=The Diamond Rubber Co. (Akron, Ohio) announce that all the American entries for the Vanderbilt Cup race, to take place on Long Island on October 6, are to be equipped with the Diamond wrapped tread tires. All the American cars entered in the elimination race on September 22 were also equipped with these tires.

=On his recent return from Europe, Colonel Samuel P. Colt was welcomed home at Bristol, Rhode Island, by a number of friends who had speeded him on his departure a few weeks earlier. It was on the evening of September 17 that Colonel Colt was surprised by the arrival of a large party in automobiles, who, after welcoming speeches, presented him with a beautiful silver service, each piece bearing the coat of arms of the Colt family and the inscription "Squantum July 2, 1906," the whole being a souvenir of the farewell dinner above referred to.

=The number of dollars that have been saved to the rubber trade by the use of recording thermometers must be quite large, and hundreds of them are in use in rubber mills particularly the Bristol, which is the manufacturers' delight and the heater man's —— well the heater man has to keep awake with that infallible watcher always so much in evidence.

=Mrs. A. D. Schlesinger, wife of the superintendent of the India Rubber Comb Co. (College Point, Long Island), died on September 21, after having been an invalid for very many years.

=Mr. George H. Hood, tanned, vigorous, and happy, is spending much of his time running his farm at Hamilton, Massachusetts.

INCREASED RUBBER DIVIDENDS.

THE directors of the Rubber Goods Manufacturing Co., on September 21, declared a semi annual dividend of 1 per cent. on the common stock, out of the earnings of the first six months of this year, payable October 15 to shareholders of record September 30. Dividends had not been paid previously on these shares since the end of 1901. The directors of the General Rubber Co. have declared a quarterly dividend of 4 per cent., payable September 30 to shareholders of record September 21. In June last the company declared a dividend of 4 per cent. for the preceding fiscal year. As the shares of these two companies are held so largely by the United States Rubber Co., and the dividends on these will amount to a handsome sum, some holders of the common stock of the United States company are asking whether this money will be applied to a resumption of dividends on common.

NEW AUTOMOBILE TIRE PRICES.

SEVERAL of the rubber tire manufacturers have issued new lists since September 1. These lists are substantially the same as before, though some changes have been introduced to make them more symmetrical. Hitherto, some tires have been higher priced in relation to the material and workmanship involved than others, and in the new lists prices have been more nearly equalized. New discounts have been arranged, however, by certain firms, including The B. F. Goodrich Co. and the Diamond Rubber Co., which will have the effect on the average of slightly reducing the prices. While prices are subject to change without notice, they will expire by limitation in any case July 15, 1907. The Hartford Rubber Works Co. announce that their prices will be absolutely maintained. The Goodyear Tire and Rubber Co., in advance of the issue of a new list, state that their prices will be substantially the same as last year.

NEW YORK STOCK EXCHANGE TRANSACTIONS.

UNITED States Rubber Co.:

DATES.	Common.			Preferred.		
	Sales.	High.	Low.	Sales.	High.	Low.
Week ending Aug. 25	8,205	48⅜	45¾	1,450	109⅜	107
Week ending Sept. 1	700	47¼	45⅝	1,543	109	108
Week ending Sept. 8	4 500	48	45⅛	3,500	108⅝	106½
Week ending Sept. 15	28,800	56¼	47½	6,020	111¾	107⅞
Week ending Sept. 22	18,270	56½	53¾	4,500	111¼	109½

SECOND PREFERRED.

WEEK ending—Aug. 25.		Sept. 1.	Sept. 8.	Sept. 15.	Sept. 22.
Sales.....	100	—	—	700	400
High	79	—	—	81	80⅞
Low.....	79	—	—	80	80

REVIEW OF THE CRUDE RUBBER MARKET.

THE market has presented few changes during the month. Buying has not been particularly active at any time, and quotations are slightly lower than a month ago, though the month closes with a condition of firmness, with indications that more interest on the part of consumers will be manifested in the near future. Arrivals at Pará since the beginning of the crop year have been larger than usual, but the receipts for the first three months of any season are no sure indication of what the whole year will bring out, and prices have not been materially affected. The figures are:

	1903.	1904.	1905.	1906.
July.....*tons*	1280	1250	1450	1840
August.....	1230	1260	1300	1690
September.....	2010	1780	2200	*a* 955
Total.....	4520	4290	4950	4485

[*a*—To September 18, 1906.]

The impression has prevailed in some quarters that less rubber will be called for in the rubber shoe industry this year, owing to the stocks of manufactured goods held over on account of the "open" winter last season. But it is pointed out by a member of the crude rubber trade that any falling off from this cause will be more than compensated for by the constantly increasing consumption of rubber in tires, not for automobiles alone, but for vehicles of many kinds, and particularly commercial vehicles.

The stability of the market above referred to is regarded by many as due, at least in part, to the fact that certain large consuming interests are now more regular buyers than formerly, on the theory that active buying at intervals on a large scale is always liable to influence prices, and even to cause marked fluctuations. The size of stocks in the New York market is not always a matter of certainty, and some estimates are considerably in excess of the "official" figures supplied to the trade.

In addition to the arrivals at New York from Pará, reported on another page, the *Hildebrand* landed on September 25, with 683,900 pounds of rubber, including 16,700 Caucho.

Following is a statement of prices of Pará grades, one year ago, one month ago, and on September 27—this date:

PARA.	October 1, '05.	September 1, '06.	September 27.
Islands, fine, new.....	127@128	119@120	119@120
Islands, fine, old.....	none here	none here	none here
Upriver, fine, new.....	129@130	124@125	123@124
Upriver, fine, old.....	132@133	126@127	126@127
Islands, coarse, new.....	71@ 72	66½@ 67	67@ 68
Islands, coarse, old.....	none here	none here	none here
Upriver, coarse, new.....	92@ 93	91½@ 92	@ 92
Upriver, coarse, old.....	none here	none here	none here
Caucho (Peruvian) sheet....	73@ 74	75@ 76	75@ 76
Caucho (Peruvian) ball.....	85@ 86	90@ 91	91@ 92
Ceylon (Plantation) fine sheet.....		142@143	142@143
AFRICAN.		CENTRALS.	
Sierra Leone, 1st qual. 102	@103	Esmeralda, sausage..	89@ 90
Massai, red..... 102	@103	Guayaquil, strip.....	73@ 74
Benguella..... 78	@ 79	Nicaragua, scrap.....	85@ 86
Cameroon ball..... 76	@ 77	Panama, slab.....	63@ 64
Accra flake..... 21½	@ 22	Mexican, scrap.....	88@ 89
Lopori ball, prime... 114	@115	Mexican, slab.....	62@ 63
Lopori strip, prime.. 103	@104	Mangabeira, sheet.....	69@ 70
Madagascar, pinky..	@ 93	Guayule.....	40@ 45
Ikelemba..... 115	@116	EAST INDIAN.	
Soudan niggers..... 95	@ 96	Assam.....	92@ 93
		Borneo.....	41@ 48

Late Pará cables quote:

Per Kilo		Per Kilo.	
Islands, fine.....	5$450	Upriver, fine.....	6$800
Islands, coarse.....	2$850	Upriver, coarse.....	4$700

Exchange, 15 1/16*d.*

Last Manáos advices:

Upriver, fine.....	6$800	Upriver, coarse.....	4$150

Exchange, 15 1/16*d.*

Statistics of Para Rubber (Excluding Caucho).

NEW YORK.	Fine and Medium.	Coarse.	Total. 1906.	Total. 1905.	Total. 1904.
Stocks, July 31.....*tons*	140	7 =	147	417	137
Arrivals, August.....	454	269 =	723	445	478
Aggregating.....	594	276 =	870	862	615
Deliveries, August.....	507	270 =	777	546	549
Stocks, August 31.....	87	6 =	93	316	66

	PARÁ.			ENGLAND.		
	1906.	1905.	1904.	1906.	1905.	1904.
Stocks, July 31. .....*tons*	376	240	175	790	390	585
Arrivals, August.....	1565	1230	1010	460	690	595
Aggregating.....	1941	1470	1185	1250	1080	1180
Deliveries, August.....	1491	1195	870	550	700	745
Stocks, August 31.....	450	275	315	700	380	345

	1906.	1905.	1904.
World's visible supply, August 31.....*tons*	1876	1534	1281
Pará receipts, July 1 to August 31.....	2865	2480	1010
Pará Receipts of Caucho, same dates.....	485	220	230
Afloat from Pará to United States, Aug. 31.	218	87	166
Afloat from Pará to Europe, August 31.....	415	476	241

Antwerp.

TO THE EDITOR OF THE INDIA RUBBER WORLD: At the sale of August 24, the transactions comprised the following quantities:

	Exposed.	Sold.
Congo sorts.....tons	348	330
Sundries.....	83	38
Total.....	431	368

Buyers showed some hesitation and prices were very irregular, the average decline on valuations being about 1 per cent. The next large sale by inscription will be held on September 26, when about 481 tons will be offered, chiefly arrivals per steamers *Philippeville* and *Leopoldville*. Sales since August 1, about 400 tons; stock about 700 tons. C. SCHMID & CO., SUCCESSEURS.

Antwerp, Belgium, August 27, 1906.

Rubber Scrap Prices.

NEW YORK quotations—prices paid by consumers for carload lots in cents per pound—are somewhat higher throughout the list:

Old Rubber Boots and Shoes—Domestic.....	9¼	@	9⅜
Do —Foreign.....	8½	@	8⅝
Pneumatic Bicycle Tires.....	7½	@	7¾
Automobile Tires	10	@	10⅜
Solid Rubber Wagon and Carriage Tires.....	8¼	@	8⅞
White Trimmed Rubber.....	11½	@	11¾
Heavy Black Rubber.....	5½	@	5⅝
Air Brake Hose.....	4¾	@	5
Fire and Large Hose.....	3⅝	@	3¾
Garden Hose	2½	@	2¾
Matting.....	1½	@	1⅝

RUBBER ARRIVALS AT ANTWERP.

SEPT. 10.—By the *Bruxellesville*, from the Congo:

Bunge & Co.	(Société Generale Africaine)	*kilos* 107,000	
Do		67,500	
Do	(Cie. du Kasai)	60 100	
Do	(Comité Special Katanga)	5,500	
Do	(Chemins de fer Grand Lacs)	11,100	
Société Coloniale Anversoise	(Belge du Haut Congo)	28,000	
Do	(Cie. de Lomami)	9,150	
Do	(Süd Kamerun)	1,500	
Do		1,500	
M. S. Cols	(Mr. D'Heygere)	400	
Do	(Baniembé)	2,100	
Société Equatoriale Congolaise	(l'Ikelemba)	1,000	294,850

AUGUST 21.—By the *Leopoldville*, from the Congo:

Bunge & Co	(Société Générale Africaine)	*kilos* 78,000	
Do		19,600	
Do	(Comité Special Katanga)	2,000	
Do	(Chemins de fer Grand Lacs)	3,100	
Do	(Société A B I R)	14 000	
Société Coloniale Anversoise	(Belge du Haut Congo)	1,400	
Do	(Süd Kamerun)	5,500	
Do		3,800	
L. & W. Van de Velde	(Cie du Kasai)	106,000	
Do		7,000	
G. & C. Krelinger	(Société "La Lobay")	8,800	
M. S. Cols	(l'Ikelemba)	400	
Do	(C. D'Heygere)	350	
Charles Dethier	(Belgika)	900	
Société Equatoriale Congolaise	(l'Ikelemba)	580	251,430

New Caledonia Rubber Exports.

EXPORTS of rubber from the French colony of New Caledonia (mostly to the Bordeaux market) are reported in *La Quinzaine Coloniale* as follows. Prices have been on a par with Conakry niggers:

1899	1,524 *kilos*	1903	11,268 *kilos.*
1900	24,110 "	1904	17,099 "
1901	16,511 "	1905	22,647 "
1902	8,514 "		

Ceylon (Plantation) Rubber Exports, 1906.

DETAILS—BY WEEKS.

	POUNDS.		POUNDS.
January 1 to June 18	129,785	Week ending Aug 6	10,133
Week ending June 25	19	Week ending Aug. 13	1,548
Week ending July 2	9,893		
Week ending July 9	4,946	Total, 1906	177,691
Week ending July 16	10,421	Same dates, 1905	65,125
Week ending July 23	2,499	Same dates, 1904	41,295
Week ending July 30	8,447	Same dates, 1903	26,413

DESTINATION.

Great Britain	132,388	Australia	1,272
United States	34,067	France	761
Germany	8,956	Belgium	247

London.

THE partnership hitherto carried on under the name of Alden Symington & Co., by A. H. Alden, William Symington, A. H. B. G. Symington, and E. Olsen, was dissolved on August 31. The business, however, is being continued under the name of A. H. Alden & Co., Limited, in the same offices in London, Liverpool, and Hamburg, in every respect, with the exception of the retirement of the Messrs. Symington. The directors of the new company are Adelbert H. Alden (chairman), Edward Olsen (deputy chairman), G. Edwin Alden, Albert Long, William H. Hildreth Arthur W. Stedman, and Frederick W. Dunbar. Associated in the management in Europe will be Mr. Olsen, who has been with the firm for many years, and Mr. Hildreth, associated with them for some time past in Brazil. Also Mr. Long, who has been with the firm for nearly 18 years.

The business of Alden, Symington & Co. has not been acquired by any other corporation, as some newspaper reports would imply, though the Messrs Symington have organized a new corporation, William Symington & Co., Limited.

LONDON RUBBER MARKET.

SEPTEMBER 14.—The market has been firmer during the past week, Lewis & Peat report, and more business has been done. Sales included fine hard fine Pará, spot near delivery, at 5*s.* 2*d.* and distant delivery at 5*s.* 1½*d.*

Plantation.—Gow, Wilson & Stanton, Limited, report offers at to-day's auction of 328 packages of Ceylon and Straits, of which about 165 were sold. The highest prices paid was 5*s.* 7½*d* [=$1.36¾] for fine Ceylon biscuits and fine pale crepe. Fine sold at this time last year as high as 6*s.* 4½*d.* [=$1.55] per pound. The decline since last year has been more than on fine Pará, the highest price for which to-day is 5*d.* [=about 10 cents] below this date in 1905.

Liverpool.

EDMUND SCHLÜTER & Co. report [August 31]:

These figures show a heavy increase of receipts both of Rubber and Caucho, the result of an early crop, and it is possible that the receipts during September may also exceed those of September, 1905 Experience has, however, shown that large receipts during the first half of the season are almost without exception followed by proportionally moderate ones during the second half and consumers will do well not to lose sight of this fact.

WORLD'S VISIBLE SUPPLY OF PARÁ, AUGUST 31.

	1906.	1905.	1904.	1903.	1902.
Tons	2810	1866	1402	1976	2902
Prices, hard fine	5/2	5/7	5/—	4/3	3/2¾

LIVERPOOL STOCKS OF AFRICAN RUBBER, AUGUST 31.

1906	372	1903	305	1900	710
1905	323	1902	449	1899	459
1904	459	1901	626	1898	373

WILLIAM WRIGHT & Co. report [September 1]:

Fine Pará.—During the first half of the month the market was firm and fairly active. Owing to some American orders spot prices advanced to 5*s.* 3*d.*; towards the close the demand has been very dull; closing value 5*s.* 2*d.* for Upriver. Islands has been rather more inquired for, and up to 5*s.* 2½*d.* was paid, closing at 5*s.* 2*d.* America still continues quiet, and the tone there is rather easier. At the moment there are no indications of an advance in prices.

IMPORTS FROM PARA AT NEW YORK.

[*The Figures Indicate Weights in Pounds.*]

August 23.—By the steamer *Fluminense*, from Pará:

IMPORTERS.	Fine.	Medium.	Coarse.	Caucho.	Total.
N. Y. Commercial Co.	82,700	29,400	49,800	2,400=	164,300
General Rubber Co.	42,400	7,800	65,100	300=	115,600
Poel & Arnold	17,400	6,100	44,900	300=	68,700
C. P. dos Santos	14.100	700	3,400	.....=	18,200
Edmund Reeks & Co.	6,700	1,100	7,000	.....=	14,800
A. T. Morse & Co.	3 100	300	9,500	.....=	12,900
Neale & Co	2,400	1,300	4,800	.....=	8,500
Total	168,800	46,700	184,500	3,000=	403,000

September 4.—By the steamer *Amazonense*, from Manáos and Pará:

General Rubber Co.	89,100	10,300	64,900	1,200=	165,500
Poel & Arnold	57,200	16,400	21,500	10,500=	105,600
N. Y. Commercial Co.	42,700	4,700	12,500	.....=	59,900
Edmund Reeks & Co.	27,400	7,100	13,100	.....=	47,600
A. T. Morse & Co.	1,500	.....	27,800	.....=	29,300
Neale & Co	8,100	1,100	20,200	.....=	29,400
Hagemeyer & Brunn.	11,400	.....	2,100	.....=	13,500
C. P. dos Santos	8,400	.....	2,400	.....=	11,800
Total	245 800	39,600	164,500	11,700=	461,600

September 14.—By the steamer *Cearense*, from Manáos and Pará:

Poel & Arnold	151,900	29,900	67,400	15,500=	264,700
General Rubber Co.	60,800	7,700	125 500	300=	194,300
N. Y. Commercial Co.	108,600	13.100	41,800	23,800=	187,300
A. T Morse & Co.	122,700	13,600	53 400	400=	190,100
C. P. dos Santos	27,200	4,200	2,700	600=	34,700
Hagemeyer & Brunn.	19,300	2,000	10,600	.....=	31,900
Edmund Reeks & Co.	11,500	5,100	8,600	.....=	25,200
Neale & Co	8,800	1,400	8,900	.....=	19,100
G. Amsinck & Co.	.....	....	200	11,200=	11,400
Total	510,800	77,000	319,100	51,700=	958,700

[NOTE.—The steamer *Basil* from Pará is due at New York, October 5, with 270 tons rubber.]

PARA RUBBER VIA EUROPE.

POUNDS

AUG. 20.—By the *Georgic*=Liverpool:
Poel & Arnold (Caucho) 18,000

AUG. 30.—By the *Majestic*=Liverpool:
Robinson & Stiles (Fine) 22,500

SEPT. 4.—By the *Celtic*=Liverpool:
Robinson & Stiles (Fine) 18,000

SEPT. 4.—By the *Umbria*=Liverpool:
New York Commercial Co (Fine) 45,000

SEPT. 5.—By the *Caronia*=Liverpool:
New York Commercial Co. (Coarse) .. 25,000
Robinson & Stiles (Fine) 11,000 36,000

SEPT. 12.—By the *Bovic*=Liverpool:
Poel & Arnold (Fine) 7,000
Poel & Arnold (Caucho) 185,000
New York Commercial Co (Coarse) ... 4,500 196,500

SEPT. 12.—By the *Teutonic*=Liverpool:
A. T. Morse & Co. (Caucho) 20,000

SEPT. 13.—By the *Waldersee*=Hamburg:
New York Commercial Co. (Fine) ... 22,500
Poel & Arnold (Caucho) 6,500 29,000

SEPT. 17.—By the *Etruria*=Liverpool:
New York Commercial Co. (Fine) 18,000

SEPT. 22.—By the *Lucania*=Liverpool:
Robinson & Stiles (Fine) 30,000

OTHER ARRIVALS AT NEW YORK

CENTRALS.

POUNDS.

AUG. 22.—By the *Finance*=Colon:
G. Amsinck & Co. 4 400
E. B. Strout 2,600
Piza, Nephews & Co 1,700
W. Loaiza & Co. 700 9,400

AUG. 22.—By the *Sibiria*=Costa Rica:
Suzarte & Whitney 1,000
Roldan & Van Sickle. 800
Isaac Brandon & Bros. 700
Foulke & Co. 900
Anthono Held. 600
A. A. Lindo & Co 500
Graham Hinkley Co. 500 5,000

AUG. 24.—By the *Rio Grande*=Mobile:
Manhattan Rubber Mfg. Co. 2,500
A. N. Rotholz 1,700
A. T. Morse & Co. 3,000
Thebaud Brothers 1,300 7,500

AUG. 24.—By the *El Norte*=Galveston:
Continental Mexican Co 30,000

AUG. 24.—By the *Batavia*=Hamburg:
A. T. Morse & Co. 22,500

AUG. 25.—By the *Seguranca*=Mexico:
Harburger & Stack 4,500
E. Steiger & Co 1 500
H. Marquardt & Co. 1,200
E. N. Tibbals Co 500 7,700

AUG. 25.—By the *Matanzas*=Tampico:
Edward Maurer 30,000
Harburger & Stack 2,000
H. Marquardt & Co. 500 32,500

AUG. 27.—By the *Colon*=Colon:
Feltman Estate 11,000
Lawrence Johnson & Co 6,100
Lawrence Turnure & Co 4,900
Mann & Emdon 4,300
Bartling & De Leon 1,000
Meyer Hecht 600 27,900

AUG. 27.—By the *Prins Ethel Frederick*=Colon:
Feltman Estate 5,500
A. Santos & Co. 1,200
George A. Alden & Co 1,000
Fredk. Probst & Co 1,300
E. B. Strout. 1,200
Aros. Georges & Co 2 000
Fould & Co. 800
H. & S. Henry Co. 700
Pedro A. Lopez 700
Roldan & Van Sickle. 600
G. Amsinck & Co. 500
Mecke & Co 500 16,000

SEPT. 1.—By the *Monterey*=Mexico:
Harburger & Stack 4,500
E. Steiger & Co. 1,000

CENTRALS—Continued.

H. Marquardt & Co 500
Graham, Hinkley & Co 500 6,500

SEPT. 1.—By the *Advance*=Colon:
Feltman Estate 13,000
New York Commercial Co. 4,000
Dumarest Bros. & Co 1,200
G. Amsinck & Co. 1,300
Aramburo Incpta 2, 00
F. Rosenstein & Co. 600
American Trading Co. 600 22,800

SEPT. 1.—By the *El Monte*=New Orleans:
A. N. Rotholz 1,500

SEPT. 1.—By the *Seneca*=Tampico:
New York Commercial Co. 30,000

SEPT. 5.—By the *Mesaba*=London:
George A. Alden & Co. 40,000

SEPT. 4.—By *El Cid*=Galveston:
Continental & Mexican Co. 82,000

SEPT. 7.—By the *Pretoria*=Hamburg:
Poel & Arnold 22,500

SEPT. 5.—By the *Panama*=Colon:
Mann & Emdon 3,100
Lawrence Johnson & Co. 2,200
G Amsinck & Co. 2,500
E. B Strout & Co. 1,600
A. Rosenthals Sons 1,300
Feltman Estate 900
Meyer Hecht 600
Aramburo Incpta 500 12 700

SEPT. 5.—By the *Sarnia*=Colombia:
D. A DeLima & Co 2,500
Kunhardt & Co. 1,500
Isaac Brandon & Bros 700 4,700

SEPT .6.—By the *Tintoretto*=Bahia:
American Commercial Co. 46,500
New York Commercial Co. 36,000
Adolph Hirsch & Co. 5,500 88 000

SEPT. 7.—By *El Dorado*=New Orleans:
Manhattan Rubber Mfg. Co. 2,000
Eggers & Heinlein 2,000 4,000

SEPT. 10.—By the *Minneapolis*=London.
Robinson & Stiles 4,500

SEPT. 12.—By The *El Mar*=Galveston:
Continental & Mexican Co 28,000

SEPT. 11—By the *Allianca*=Colon:
Feltman Estate. 23,700
Lawrence Johnson & Co 16,600
New York Commercial Co. 8,100
P. Calverto Co. 1,000
E. B. Strout 1.100
Charles E. Griffin 1,500 52,000

SEPT. 12 —By the *Venetia*=Colon:
G. Amsinck & Co. 3,500
A. Held. 1,300
Isaac Brandon & Bros 1,000
H. Marquardt & Co. 700 6,500

SEPT. 13.—By the *La Plata*=Carribbean:
American Trading Co. 1,500
Silva Bussenius & Co 1 500
D. A. DeLima & Co 1,500
Smithers Nordenholt & Co. 1,000
Aramburo Incpta 600
Wessels & Kulenkamp 600
Kunhardt & Co 500
G. Amsinck & Co. 500 7,700

SEPT. 14.—By the *El Paso*=New Orleans:
A. T. Morse & Co. 3,000

SEPT. 15.—By the *El Rio*=Galveston:
Continental & Mexican Co. 43,000

SEPT. 14.—By the *Esperanza*=Frontera:
Harburger & Stack 3,500
Thebaud Brothers 2,500
H. Marquardt & Co. 2,000
Graham, Hinkley & Co 1,500
E. Steiger & Co. 1,000
American Trading Co. 500 11,000

SEPT. 17.—By the *Etruria*=Liverpool:
Rubber Trading Co. 4,500
F. N. Beattie. 2,500 7,000

SEPT. 17.—By the *Finance*=Colon:
New York Commercial Co 4,700
Roldan & Van Sickle 3,900
Feltman Estate 3,200
Dumarest Bros. & Co. 2,900

CENTRALS—Continued.

Piza, Nephews & Co. 2,700
A. M. Capen Sons 1,800
G. Amsinck & Co. 1,700
E. B Strout. 1.200
Andean Trading Co. 600 22,700

SEPT. 17.—By the *Yucatan*=Tampico:
New York Commercial Co. 30,000
Edward Maurer. 25,000 55,000

SEPT. 18.—By the *Virginia*=Colon:
G. Amsinck & Co. 5,000
George A. Alden & Co. 1,000 6,000

SEPT. 18.—By the *Tennyson*=Bahia:
J. H. Rossback & Bros. 27,000
American Commercial Co. 13,500
A. Hirsch & Co 3,000 43,500

SEPT 19.—By the *Sibiria*=Colombia:
D A. De Lima & Co 2,500
Isaac Brandon & Bros 1,500
Silva Bussenius & Co. 1,000
H. & S. Henry Co. 1,000
American Trading Co. 1,000
Wessels, Kulemkamp Co. 700
A. A. Lindo & Co. 600
Roldan & Van Sickle. 600
C. A. Delgado 600
Aramburo Incpta 500 10,000

SEPT. 19.—By the *Spartan Prince*=Bahia:
American Commercial Co. 31,000
New York Commercial Co 25,000
J. H. Rossback & Bros. 11,000 67,000

SEPT. 20.—By the *Matanzas*=Tampico:
New York Commercial Co. 22,500
European Account 22 500
Harburger & Stack. 2,000
Isaac Kubie & Co. 1,000 48,000

SEPT. 20 —By the *El Cid*=Galveston:
Continental & Mexican Co. 18,000

SEPT. 20.—By the *Colon*=Colon:
G. Amsinck & Co. 4 100
Jose Julia & Co. 3,300
E. B. Strout 2,900
Dumarest Bros. & Co. 2,500
W. R. Grace & Co. 2,000
Roldan & Van Sickle. 1,700
Andean Trading Co. 1,700
Wessels, Kulemkamp & Co. 1,200
Meyer Hecht 1,000
New York Commercial Co. 800
Piza, Nephews & Co. 600 21,800

SEPT. 22.—By the *El Monte*=New Orleans:
A. T. Morse & Co. 3,500
G. Amsinck & Co. 2,500
A. N. Rotholz 1.000 7,000

SEPT. 22.—By the *Seguranca*=Mexico:
E. Steiger & Co. 4,500
Harburger & Stack 2.000
Thebaud Brothers. 2,000
Frederick Probst & Co. 1,500
Graham, Hinkley & Co. 1,000
W. L. Wadleigh. 500 11 500

SEPT. 22.—By the *El Siglo*=Galveston:
Continental & Mexican Co. 26,000

AFRICANS.

POUNDS.

AUG. 20.—By the *Georgic*=Liverpool:
Poel & Arnold 22,500
A. T. Morse & Co 2,500 25,000

AUG. 22.—By the *Carmania*=Liverpool:
George A. Alden & Co. 55,000

AUG. 24.—By the *Batavia*=Hamburg:
Poel & Arnold 35,000
A. T. Morse & Co 25,000 60 000

AUG. 25.—By the *Lucania*=Liverpool:
George A. Alden & Co. 22,500
Henry A. Gould Co 3,000
Robinson & Stiles. 2,000 27,500

AUG. 27.—By the *Finland*=Antwerp:
Western Electric Co 15,000

AUG. 27.—By the *Cevic*=Liverpool:
Poel & Arnold 30,000
A. W. Brunn & Co. 5 500 35 500

AUG. 28.—By the *Potsdam*=Rotterdam:
Poel & Arnold 11,500
Rubber Trading Co. 7,000
James E. Odell. 1,000 19,500

AFRICANS—Continued.

AUG. 30.—By the *Majestic*=Liverpool:

George A. Alden & Co.	20,000	
Rubber Trading Co.	10,000	
Raw Products Co.	7,000	
James E. Odell	2,500	
Robinson & Stiles	2,500	42,000

AUG. 31.—By the *Patricia*=Hamburg:

A. T. Morse & Co	45,000	
George A. Alden & Co.	15,000	60,000

SEPT. 1.—By the *Hudson*=Havre:

A. T. Morse & Co		11,000

SEPT. 4.—By the *Blucher*=Hamburg:

George A. Alden & Co.	4,500	
A. T. Morse & Co.	2,500	7,000

SEPT. 4.—By the *Zeeland*=Antwerp:

Rubber Trading Co.		3,300

SEPT. 4.—By the *Celtic*=Liverpool:

Rubber Trading Co.		7,000

SEPT. 5.—By the *Caronia*=Liverpool:

George A. Alden & Co.	45,000	
General Rubber Co.	45,000	
Livesey & Co	7,000	
Henry A. Gould Co	5,000	102,000

SEPT. 7.—By the *Pretoria*=Hamburg:

George A. Alden & Co.	30,000	
Poel & Arnold	7,000	
General Rubber Co.	13,500	
Rubber Trading Co.	20,000	
A. T. Morse & Co.	3,500	74,000

SEPT 10.—By the *St. Paul*=London:

Poel & Arnold	11,000	
George A. Alden & Co.	5,000	16,000

SEPT. 11.—By the *Kroonland*=Antwerp:

A. T. Morse & Co	9,000	
Rubber Trading Co	3,000	12,000

SEPT. 12.—By the *Bovic*=Liverpool:

Poel & Arnold	22,500	
George A. Alden & Co.	17,000	
Raw Products Co.	8,000	
Rubber Trading Co	7,000	
A. T. Morse & Co	2,000	56,500

SEPT. 13.—By the *America*=Antwerp:

George A. Alden & Co.	89,000	
A. T. Morse & Co.	16,000	
Poel & Arnold	50,000	
Robinson & Stiles	7,000	162,000

SEPT. 13.—By the *Waldersee*=Hamburg:

A. T. Morse & Co.	45,000	
Poel & Arnold	30,000	
George A. Alden & Co.	3,000	78,000

SEPT. 17.—By the *Etruria*=Liverpool:

Rubber Trading Co.	7,000	
George A. Alden & Co.	6,500	13,500

SEPT. 17.—By the *Touraine*=Havre:

A. T. Morse & Co.	9,000	
George A. Alden & Co.	4,500	13,500

SEPT. 17.—By the *Cedric*=Liverpool:

General Rubber Co.	45,000	

AFRICANS—Continued.

A. W. Brunn & Co	16,000	
Livesey & Co.	11,500	
Earle Brothers	3,500	76,000

SEPT. 18.—By the *Vaderland*=Antwerp:

Raw Products Co	2,500	
New York Commercial Co.	2,500	5,000

SEPT. 19.—By the *Hamburg*=Hamburg:

Poel & Arnold	25,000	
George A. Alden & Co.	13,500	
General Rubber Co.	8,000	46,500

SEPT. 20—By the *Baltic*=Liverpool:

Robinson & Stiles	4,500	
Rubber Trading Co	4,500	
Earle Brothers	3,500	
Livesey & Co	1,000	13,500

SEPT 20. By the *Carmania*=Liverpool:

George A. Alden & Co.		4,500

EAST INDIAN.

AUG. 27.—By the *Minnetonka*=London:

	POUNDS.
George A. Alden & Co.	25,000

SEPT. 4.—By the *Celtic*=Liverpool:

A. T. Morse & Co.	9,000

SEPT. 10.—By the *Minneapolis*=London:

Robinson & Stiles	7,000	
George A. Alden & Co.	1,500	8,500

SEPT. 12.—By the *Wartenfels*—Colombo:

A. T. Morse & Co.	6,000

SEPT. 11.—By the *Anglo Saxon*=Singapore:

Joseph Cantor	15,000	
A. T. Morse & Co	9,000	
A. W. Brunn & Co	10,000	34,000

SEPT. 12. By the *Indrasamha*—Singapore:

Heubler & Co.	22,500	
Poel & Arnold	11,000	
A. T. Morse & Co	22,500	
A. W. Brunn & Co.	30,000	
Joseph Cantor	15,000	
F. R. Muller & Co.	17,000	
George A. Alden & Co	5,000	123,000

SEPT. 17.—By the *Minnehaha*—London:

Robinson & Stiles	8,000	
A. T. Morse & Co.	3,500	
George A. Alden & Co.	3,500	15,000

GUTTA-JELUTONG.

SEPT. 11.—By the *Anglo Saxon*=Singapore:

William Tappenbach	425,000	
Poel & Arnold	150,000	
Edward Bonstead & Co.	175,000	
H. Rouli & Co	75,000	
D. A. Shaw & Co.	55,000	
Interior Ports	125,000	1,005,000

SEPT. 12—By the *Indrasamha*=Singapore:

Heubler & Co	350,000	
Poel & Arnold	140,000	
A. W. Brunn & Co.	110,000	
William Tappenbach	110,000	
Robinson & Stiles	125,000	
George A. Alden & Co.	150,000	
F. R. Muller & Co	15,000	1,000,000

GUTTA-PERCHA AND BALATA.

	POUNDS.
AUG. 25. By the *Savoie*—Havre:	
George A. Alden & Co.	4,500
SEPT. 12.—By the *Indrasamha*=Singapore:	
Robert Soltau Co.	7,000
SEPT. 19—By the *Hamburg*=Hamburg:	
Robert Soltau Co.	22,500
BALATA.	
AUG. 21.—By the *Korana*=Demerara:	
George A. Alden & Co.	6,000
SEPT. 10.—By the *Minneapolis*—London:	
Henry A. Gould Co	4,500
SEPT. 13.—By the *Parima*=Demerara:	
George A. Alden & Co.	10,000
Frame & Co	10,000 20,800

CUSTOM HOUSE STATISTICS.

PORT OF NEW YORK—AUGUST.

Imports:	Pounds.	Value.
India-rubber	3,605,844	$2,660,719
Gutta-percha	75,057	22,358
Gutta jelutong (Pontianak)	1,199,463	47,923
Total	4,880,364	$2 731,030
Exports:		
India-rubber	101,305	$ 87,986
Reclaimed rubber	122,427	22,236
Rubber Scrap Imported	1,439,598	$ 115,640
Rubber Scrap Exported	4,735	1,369

BOSTON ARRIVALS.

	POUNDS.
JULY 5.—By the *Kennebec*=Singapore:	
George A. Alden & Co.—Ceylon	800
JULY 9.—By the *Michigan*=Liverpool:	
Poel & Arnold—African	10,276
JULY 10.—By the *Bohemian*=Liverpool:	
William Wright & Co.—Central	30,677
JULY 14.—By the *Sylvania*—Liverpool:	*
A. T. Morse & Co.—Almedina gum	5,078
JULY 17.—By the *Canadian*=Liverpool:	
William Wright & Co.—Central	38,478
JULY 19.—By the *Wildenfels*=Calcutta:	
George A. Alden & Co.—East Indian	2,673
JULY 23.—By the *Sachem*—Liverpool:	
Poel & Arnold.—African	1,231
JULY 30.—By the *Sagamore*—Liverpool:	
Poel & Arnold—African	15,624
Total	104,837

[Value $64,340.]

OFFICIAL STATISTICS OF CRUDE INDIA-RUBBER (IN POUNDS)

UNITED STATES.

MONTHS.	IMPORTS	EXPORTS.	NET IMPORTS.
July, 1906	4,675,718	296,030	4,379,688
January-June	33,531,440	1,783,648	31,747,792
Seven months, 1906	38,207,158	2,079,678	36,127,480
Seven months, 1905	42,382,481	1,834,536	40,547,945
Seven months, 1904	37,689,032	1,979,724	35,709,308

GREAT BRITAIN.

MONTHS.	IMPORTS.	EXPORTS.	NET IMPORTS.
July, 1906	4,581,360	2,793,616	1,787,744
January-June	34,477,744	18,736,480	15,741,264
Seven months, 1906	39,059,104	21,530,096	17,529,008
Seven months, 1905	37,519,776	20,445,720	17,074,056
Seven months, 1904	34,992,048	19,453,286	15,538,762

GERMANY.

MONTHS	IMPORTS	EXPORTS.	NET IMPORTS
July, 1906	2,595,780	1,102,640	1,493,140
January-June	20,410,720	5,409,140	15,001,580
Seven months, 1906	23,006,500	6,511,780	16,494,720
Seven months, 1905	26,284,060	8,455,700	17,828,360
Seven months, 1904	20,281,680	5,848,700	14,972,980

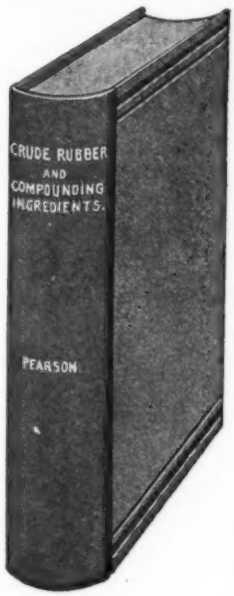
FRANCE.*

MONTHS	IMPORTS.	EXPORTS	NET IMPORTS.
July, 1906	1,944,800	1,717,540	227,260
January-June	17,757,740	8,511,800	9,245,940
Seven months, 1906	19,702,540	10,229 340	9 473,200
Seven months, 1905	16,462,820	9,477,820	6,985,000
Seven months, 1904	12,802,680	7,388,260	5,414,420

NOTE.—German statistics before Jan. 1, 1906, include Gutta percha, Balata, old (waste) rubber. British figures include old rubber. French, Austrian, and Italian figures include Gutta-percha. The exports from the United States embrace the supplies for Canadian consumption.

*General Commerce.

†Special Commerce.



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and other Tropical Seeds and Plants.

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Castilloa Elastica seeds from June to October delivery.

Manihot Glaziovii (Ceará rubber) seeds supplied always. *Ficus elastica, Landolphia Kirkii, Funtumia elastica, Urceola esculenta*, and other Rubber seeds and plants available several times in the year.

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Tropical Seed Merchants, HENERATGODA, CEYLON.

TELEGRAPHIC ADDRESS: WILLIAM, HENERATGODA, CEYLON.

☞ A Honolulu rubber planting company cabled us in August: "Send 75,000 Pará stumps, 25,000 seeds; remittance follows."

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CLASSIFIED LIST OF MANUFACTURERS AND DEALERS IN INDIA-RUBBER GOODS AND RUBBER MANUFACTURERS' SUPPLIES

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Cincinnati Rubber Mfg. Co VIII
Clapp Rubber Co., E. H. LV
Clark, Edred W. XXXVIII
Cleveland Rubber Wks. XV
Clifford, C. XXIV
Coleman Co, W. C. XXV
Continental Caoutchouc & Gutta Percha Co. XIII
Continental Rubber Company XXIX
Cravenette Co., Ltd. I
Cubberly, C. M. XLVI
Cummings & Sons, Wm. H. XXV

D

Danversport Rubber Co. XLI
Davidson Rubber Co. XLIX
Favol Rubber Co XIV
Derby Rubber Co. XLII
Dermatine Co., Ltd XLIII
Devine, Joseph P. XLIV
Dewes, A., Co. XLIII
Dewees, J. W. II
Dixon Crucible Co, Jos. XXXVIII
Dunlop Tire & Rubber Goods Co. XIII

E

Eastern Reclaimed Rubber Co. XLI
Egestorff's (Georg) Salzwerke XXVII
Electric Hose & Rubber Co. II
Empire Rubber Mfg. Co. IV
Eureka Fire Hose Co. ..... I, IV
Eureka Rubber Mfg. Co. XI

F

Fabric Fire Hose Co. IV
Farrel Foundry & Machine Co. XXXIII
Faultless Rubber Co. ....

G

Gabriel & Schall XXVII
Goldberg & Rathman XXIV
Goodrich Co., B. F. XIX
Granby Rubber Co LVII
Grieb Rubber Co. XIV
Gummi-Zeitung XXIX
Gutta Percha & Rubber Mfg. Co. LVIII
Gutta Percha & Rubber Mfg. Co., Toronto LVII

H

Hadley Cement Co XI
Hagemeyer & Brunn XXIV
Hardman Rubber Co. XIV
Hirsch & Co., A XXIV
Hodgman Rubber Co. VI
Hofeller & Co., Theodore XXV
Hoggson & Pettis Mfg. Co. XXXIV
Home Rubber Co. IX
Hood Rubber Co ..... XXXVI, LVIII
Hubbard's Sons, Norman XLIV

I

Independent Die Co. XXXIX
India-Rubber Pub. Co. ..... XLV, XLIX

J

Jenkins Bros. X
Jones, H. W. II
"Journal d'Agriculture Tropicale" LVII

K

Kaysan, H A. XLVIII
Knox, Joseph E. & Co. XXXIV
Kokomo Rubber Co. XIII
Kush, Gustave X

L

La Crosse Rubber Mills Co. XXII
Lake Shore Rubber Co. XII
Lane & Co., J. H. XLIV
Le Caoutchouc & La Gutta-Percha XLIX
Leslie & Co., A. W. XXV
Loewenthal & Co., B. II
Loewenthal & Sons, J. XXIV
Lufbery, Jr., Geo. F. XXVII

M

McGrory, Philip XXV
Manhattan Rubber Mfg. Co XII
Manufactured Rubber Co. XLI
Martin, Adolph XL
Mason Regulator Co XLIV
Massachusetts Chemical Co. XL
Mattson Rubber Co. XV
Maurer, Ed. XLVIII
Mechanical Fabric Co. XII
Mechanical Rubber Co XX
Meyer Bros. XXIV
Meyer Rubber Co. XVII
Middlesex Last Co XLVIII
Mitzel Rubber Co. XV
Müller & Co., F. R. XXIII

N

National India Rubber Co. XXXVII
New England Butt Co. XLII
New Jersey Car Spring & Rubber Co. X
New Jersey Rubber Co. XLII
New Jersey Zinc Co. XXVI
New York Belting & Packing Co XX
New York Rubber Co. VIII
North British Rubber Co., Ltd. XLIII
Norton & Co., M. XXIV

O

Ohio Rubber Culture Co. XLVIII

P

Peerless Rubber Mfg. Co. XVIII
Pequanoc Rubber Co XXIII
Perrin, Wm. R. & Co. XLVIII
Peru-Pará Rubber Co. II
Philadelphia Rubber Wks. XXVIII
Picher Lead Co. XXI
Pirelli & Co. II
Plymouth Rubber Co. XXXI
Pure Gum Specialty Co XVI

R

Republic Rubber Co. XVI
Revere Rubber Co LVI
Royle & Sons, John XXXI
Rubber Trading Co. XXI

S

S. & L. Rubber Co. XL
San Giacomo Sons XXV
Sayen, Osgood XXXIX
Scheel, Wm. H. XXVII
Schnurmann, J XXV
Schrader's Son, Inc., A. XVI
Schwab & Co. XXV
Seamless Rubber Co XV
Sharples, Stephen P. XLVIII
Shelp Mfg. Co., Henry H XXXI
Smith, P. C. XXXIX
Spealght, Geo. W XXVI
Stamford Rubber Supply Co. XXVII
Standard Rubber Co. X
Stockton Rubber Co XLII
Stokes Rubber Co., Jos. XV

T

Taintor Mfg. Co., H. F. VII
Textile-Finishing Machinery Co. XXXIV
Textile Machine Works XLVI
Thropp's Sons Co., John E XXXVIII
Thropp, William R. XXXVIII
Tire News Co. XLVI
Trenton Rubber Mfg. Co. IX
Trenton Rubber Reclaiming Works XL
"Tropical Agriculturist" LVII
Turner, Vaughn & Taylor Co. XI
Tyer Rubber Co LVIII
Typke & King XXVII

U

United States Graphite Co. XLIII
United States Rubber Co. XVII
U. S. Rubber Reclaiming Wks. XXX
U. S. Waste Rubber Co. XLVII

V

Voorhees Rubber Mfg. Co. V

W

Wanted and For Sale XLVII
Weld Mfg. Co. I
Wellman Sole Cutting Machine Co. XLIV
Westmoreland Rubber Mfg. Co. XLI
Wetherill Co., S. P XXVII
White, T. & S. C., Co. XXVI
Whitehead Brothers Rubber Co. X
Williams & Bros., J. P. XLIX
Wirt & Knox Mfg. Co. XIII
Wolpert, M. J. XXI
Woodman, Ph. D., Durand XXVII

Y

Yerdon, William XXXIX

MECHANICAL RUBBER GOODS

Belting.
Diaphragms.
Gaskets.
Hose (Fire, Garden, Steam).
Mats and Matting.
Mould Work.
Packing.
Tubing.
Valves.
Washers.

Mechanical Rubber Goods—General.

Boston Belting Co., Boston-New York.
Boston Woven Hose & Rubber Co.
Bowers Rubber Co., San Francisco, Cal.
Canadian Rubber Co. of Montreal.
Chicago Rubber Wks., Chicago.
Cincinnati Rubber Mfg. Co., Cincinnati.
Cleveland Rubber Co., Cleveland, O.
Continental Caoutchouc & Guttapercha Co., Hanover, Germany.
The Dermatine Co., London.
Dunlop Tire & Rubber Goods Co., Toronto
Empire Rubber Mfg. Co., Trenton, N.J.

Mechanical Goods—General.—Continued.

Eureka Fire Hose Co., New York.
Eureka Rubber Mfg. Co. of Trenton.
B. F. Goodrich Co., Akron, O.
Gutta Percha & Rubber Mfg. Co., N. Y.
Gutta Percha & Rubber Mfg. Co., Toronto.
Home Rubber Co., Trenton, N. J.
Lake Shore Rubber Co., Erie, Pa.
Manhattan Rubber Mfg. Co., New York.
Mechanical Rubber Co., New York.
National India-Rubber Co., Bristol, R. I.
N. J. Car Spring & Rubber Co., Jersey City, N. J.
New York Belting & Packing Co., N. Y.
New York Rubber Co., New York.
North British Rubber Co., Ltd., Edinburgh.
Peerless Rubber Mfg. Co., New York.
Pirelli & Co., Milan, Italy.
Republic Rubber Co., Youngstown, Ohio.
Revere Rubber Co., Boston.
Standard Rubber Co., Trenton, N. J.
Jas. Stokes Rubber Co., Trenton, N. J.
Trenton Rubber Mfg. Co., Trenton, N. J.
Voorhees Rubber Mfg. Co., Jersey City.
Whitehead Bros. Rubber Co., Trenton, N. J.

Air Brake Hose.

Boston Belting Co., Boston-New York.
Boston Woven Hose & Rubber Co.
Canadian Rubber Co. of Montreal.
Electric Hose & Rubber Co., Wilmington, Del.
Eureka Rubber Mfg. Co. of Trenton.

Air Brake Hose.—Continued.

B. F. Goodrich Co., Akron, O.
Gutta Percha & Rubber Mfg. Co., N. Y.
The Gutta Percha & Rubber Mfg. Co., of Toronto, Ltd.
Home Rubber Co., Trenton, N. J.
N. J. Car Spring & Rubber Co., Jersey City.
Peerless Rubber Mfg. Co., New York.
Republic Rubber Co., Youngstown, Ohio.
Revere Rubber Co., Boston-New York
Voorhees Rubber Mfg. Co., Jersey City

Belting (Canvas).

Boston Woven Hose & Rubber Co.
Canadian Rubber Co. of Montreal.
Eureka Fire Hose Co., New York.
The Gutta Percha & Rubber Mfg. Co., of Toronto, Ltd.
Peerless Rubber Mfg. Co., New York.
Revere Rubber Co., Boston-New York.

Billiard Cushions.

Boston Belting Co., Boston.
Canadian Rubber Co. of Montreal.
B. F. Goodrich Co., Akron, O.
Gutta Percha & Rubber Mfg. Co. N. Y.
Manhattan Rubber Mfg. Co., New York.
New York Belting & Packing Co., Ltd.
New York Rubber Co., New York.
Revere Rubber Co., Boston-New York.

Blankets—Printers'.

Peerless Rubber Mfg. Co., New York.
Boston Belting Co., Boston.

Blankets—Printers'.—Continued.

Canadian Rubber Co. of Montreal.
B. F. Goodrich Co., Akron, O.
Gutta Percha & Rubber Mfg. Co., N. Y.
Hodgman Rubber Co., New York.
Gustave Kush, New York.
N. J. Car Spring & Rubber Co., Jersey City, N. J.
Revere Rubber Co., Boston-New York.
Voorhees Rubber Mfg. Co., Jersey City.

Brushes.

Boston Woven Hose & Rubber Co.
C. J. Bailey & Co., Boston.

Buffers.

Boston Belting Co., Boston-New York.
Canadian Rubber Co. of Montreal.
B. F. Goodrich Co., Akron, O.
Gutta Percha & Rubber Mfg. Co., N. Y.
The Gutta Percha & Rubber Mfg. Co., of Toronto, Ltd.
National India Rubber Co., Bristol, R. I.
Revere Rubber Co., Boston, Mass.

Card Cloths.

Canadian Rubber Co. of Montreal.
Mechanical Fabric Co., Providence, R. I.

Carriage Mats.

Boston Belting Co., Boston-New York.
Boston Woven Hose & Rubber Co.
Canadian Rubber Co. of Montreal.
B. F. Goodrich Co., Akron, O.
Gutta Percha & Rubber Mfg. Co., N. Y.

RUBBER BUYERS' DIRECTORY—CONTINUED.

Carriage Mats.—Continued.

The Gutta Percha & Rubber Mfg. Co., of Toronto, Ltd.
Home Rubber Co., Trenton, N. J.
National India Rubber Co., Bristol, R. I.
N. J. Car Spring & Rubber Co., Jersey City, N. J.
Peerless Rubber Mfg. Co., New York.
Revere Rubber Co., Boston, Mass.
Voorhees Rubber Mfg. Co., Jersey City

Cord (Pure Rubber).

Boston Belting Co., Boston-New York.
Boston Woven Hose & Rubber Co.
Cleveland Rubber Co., Cleveland, O.
Davol Rubber Co., Providence, R. I.
Electric Hose & Rubber Co., Wilmington, Del.
Empire Rubber Mfg. Co., Trenton, N. J.
B. F. Goodrich Co., Akron, O.
Gutta Percha & Rubber Mfg. Co., N. Y.
The Gutta Percha & Rubber Mfg. Co., of Toronto, Ltd.
Republic Rubber Co., Youngstown, O.
Revere Rubber Co., Boston-New York.
Voorhees Rubber Mfg. Co., Jersey City.

Deckle Straps.

Boston Belting Co., Boston.
Canadian Rubber Co. of Montreal.
B. F. Goodrich Co., Akron, O.
Mechanical Rubber Co., Chicago.
New York Belting & Packing Co., N. Y.
Republic Rubber Co., Youngstown, O.
Revere Rubber Co., Boston-New York.

Door Springs.

Hodgman Rubber Co., New York.

Dredging Sleeves.

Boston Belting Co., Boston-New York.
Boston Woven Hose & Rubber Co.
Canadian Rubber Co. of Montreal.
B. F. Goodrich Co., Akron, O.
Gutta Percha & Rubber Mfg. Co., N. Y.
The Gutta Percha & Rubber Mfg. Co., of Toronto, Ltd.
Home Rubber Co., Trenton, N. J.
N. J. Car Spring & Rubber Co., Jersey City.
Republic Rubber Co., Youngstown, O.
Revere Rubber Co., Boston, Mass.

Force Cups.

The Gutta Percha & Rubber Mfg. Co., of Toronto, Ltd.
Hodgman Rubber Co., New York.
National India Rubber Co., Bristol, R. I.

Fruit Jar Rings.

Boston Woven Hose & Rubber Co.
Canadian Rubber Co. of Montreal.
Cincinnati Rubber Mfg. Co., Cincinnati, O.
Cleveland Rubber Co., Cleveland, O.
B. F. Goodrich Co., Akron, O.
Empire Rubber Mfg. Co., Trenton, N. J.
Eureka Rubber Mfg. Co. of Trenton.
The Gutta Percha & Rubber Mfg. Co. of Toronto, Ltd.
Manhattan Rubber Mfg. Co., New York.
Republic Rubber Co., Youngstown, Ohio.
New York Belting & Packing Co., N. Y.

Fuller Balls.

B. F. Goodrich Co., Akron, O.
Jenkins Bros., New York.
National India Rubber Co., Bristol, R. I.
N. J. Car Spring & Rubber Co Jersey City.
Peerless Rubber Mfg. Co., New York.
Republic Rubber Co., Youngstown, O.

Gage Glass Washers.

Boston Belting Co., Boston, Mass.
Canadian Rubber Co. of Montreal.
Cleveland Rubber Co., Cleveland, O.
Electric Hose & Rubber Co., Wilmington, Del.
Empire Rubber Mfg. Co., Trenton, N. J.
B. F. Goodrich Co., Akron, O.
The Gutta Percha & Ruober Mfg Co., of Toronto, Ltd.
Home Rubber Co., Trenton, N. J.
Jenkins Bros., New York.
Manhattan Rubber Mfg. Co., New York
Mechanical Rubber Co., Chicago, Ill.
National India Rubber Co., Bristol, R. I.
N. J. Car Spring & Rubber Co., Jersey City, N. J.
New York Belting & Packing Co., N. Y.
New York Rubber Co., New York.
Revere Rubber Co., Boston, Mass.
Jos. Stokes Rubber Co., Trenton, N. J.
Voorhees Rubber Mfg. Co., Jersey City, N. J.

Gas-Bags (Rubber).

Canadian Rubber Co. of Montreal.

Gas Bags (Rubber).—Continued.

Cleveland Rubber Co., Cleveland, O.
Davol Rubber Co., Providence, R. I.
B. F. Goodrich Co., Akron, O.
The Gutta Percha & Rubber Mfg. Co., of Toronto, Ltd.
National India Rubber Co., Bristol, R. I.
N. J. Car Spring & Rubber Co., Jersey City, N. J.
Peerless Rubber Mfg. Co., New York.
Tyer Rubber Co., Andover, Mass.
Voorhees Rubber Mfg. Co., Jersey City.

Gasket Tubing.

Canadian Rubber Co. of Montreal.
B. F. Goodrich Co., Akron, O.
The Gutta Percha & Rubber Mfg. Co., of Toronto, Ltd.
Jenkins Bros., New York.
National India Rubber Co., Bristol, R. I.
Revere Rubber Co., Boston.

Grain Drill Tubes.

Cincinnati Rubber Mfg. Co., Cincinnati, O.
The Gutta Percha & Rubber Mfg. Co., of Toronto, Ltd.

Hat Bags.

Boston Belting Co., Boston.
Canadian Rubber Co. of Montreal.
B. F. Goodrich Co., Akron, O.
Home Rubber Co., Trenton, N. J.
Manhattan Rubber Mfg. Co., New York
Mattson Rubber Co.
Mechanical Rubber Co., Chicago.
N. J. Car Spring & Rubber Co., Jersey City, N. J.
New York Belting & Packing Co., N. Y
New York Rubber Co., New York.
Peerless Rubber Mfg. Co., New York.
Republic Rubber Co., Youngstown, O.
Revere Rubber Co., Boston.

Horse Shoe Pads.

Janadian Rubber Co. of Montreal.
Home Rubber Co., Trenton, N. J.
Peerless Rubber Mfg. Co., New York.
Plymouth Rubber Co., Stoughton, Mass.
Revere Rubber Co., Boston-New York.
Voorhees Rubber Mfg. Co., Jersey City

Hose—Armored.

Hose—Wire Wound.

Boston Belting Co., Boston-New York.
Boston Woven Hose & Rubber Co.
Canadian Rubber Co. of Montreal.
Electric Hose & Rubber Co. Wilmington, Del.
B. F. Goodrich Co., Akron, O.
Gutta Percha & Rubber Mfg. Co., N. Y.
The Gutta Percha & Rubber Mfg. Co., of Toronto, Ltd.
National India Rubber Co., Bristol, R. I.
N. J. Car Spring & Rubber Co., Jersey City.
Peerless Rubber Mfg. Co., New York.
Republic Rubber Co., Youngstown, O.
Revere Rubber Co., Boston-New York,
Voorhees Rubber Mfg. Co., Jersey City.

Hose Core.

Alderfer Crate Co., Sharon Center, Ohio.

Hose Couplings and Fittings.

Boston Woven Hose & Rubber Co.
Canadian Rubber Co. of Montreal.
The Gutta Percha & Rubber Mfg. Co., of Toronto, Ltd.

Hose Linings.

Boston Belting Co., Boston-New Yrok.
Boston Woven Hose & Rubber Co.
Empire Rubber Mfg. Co., Trenton, N. J.
Eureka Rubber Mfg. Co., Trenton, N. J.
B. F. Goodrich Co., Akron, O.
The Gutta Percha & Rubber Mfg. Co., of Toronto, Ltd.
N. J. Car Spring & Rubber Co., Jersey City, N. J.
Peerless Rubber Mfg. Co., New York.
Revere Rubber Co., Boston.

Hose—Protected.

Boston Belting Co., Boston-New York
Electric Hose & Rubber Co., Wilmington, Del.
Gutta Percha & Rubber Mfg. Co., N. Y.
The Gutta Percha & Rubber Mfg. Co., of Toronto, Ltd.
Revere Rubber Co., Boston-New York
Voorhees Rubber Mfg. Co., Jersey City.

Hose Racks and Reels.

Gutta Percha & Rubber Mfg. Co., N. Y.
The Gutta Percha & Rubber Mfg. Co., of Toronto, Ltd.
Wirt & Knox Mfg. Co., Philadelphia.

Hose—Rubber Lined.

COTTON AND LINEN.

Boston Belting Co., Boston-New York
Boston Woven Hose & Rubber Co.
Gutta Percha & Rubber Mfg. Co., N. Y.
Canadian Rubber Co. of Montreal.
Cleveland Rubber Co., Cleveland, O.
Empire Rubber Mfg. Co., Trenton, N. J.
Eureka Fire Hose Co., New York.
Eureka Rubber Mfg. Co. of Trenton.
Fabric Fire Hose Co., New York.
B. F. Goodrich Co., Akron, O.
Gutta Percha & Rubber Mfg. Co., N. Y.
Gutta Percha and Rubber Mfg. Co. of Toronto.
Home Rubber Co., Trenton, N. J.
Manhattan Rubber Mfg. Co., New York.
N. J. Car Spring & Rubber Co., Jersey City, N. J.
New York Belting & Packing Co., N. Y.
Peerless Rubber Mfg. Co., New York.
Republic Rubber Co., Youngstown, O.
Revere Rubber Co., Boston.
Jos. Stokes Rubber Co., Trenton, N. J.
Voorhees Rubber Mfg. Co., Jersey City.

Hose—Submarine.

Boston Belting Co., Boston-New York.
Electric Hose & Rubber Co., Wilmington, Del.
B. F. Goodrich Co., Akron, O.
Gutta Percha & Rubber Mfg. Co., N. Y
The Gutta Percha & Rubber Mfg. Co., of Toronto, Ltd.
Republic Rubber Co., Youngstown, O.
Revere Rubber Co., Boston.
A. Schrader's Son, Inc., New York.

"Jenkins '96" Packing.

Jenkins Bros., New York.

Lawn Sprinklers.

Boston Woven Hose & Rubber Co.
Canadian Rubber Co. of Montreal.

Mallets (Rubber).

Boston Belting Co., Boston-New York.
B. F. Goodrich Co., Akron, O.
The Gutta Percha & Rubber Mfg. Co., of Toronto, Ltd.
National India Rubber Co., Bristol, R. I.
Peerless Rubber Mfg. Co., New York.
Revere Rubber Co., Boston New York.

Mould Work.

[*See Mechanical Rubber Goods.*]

Davidson Rubber Co., Boston.
Davol Rubber Co., Providence, R. I.
Faultless Rubber Co., Akron, O.
The Gutta Percha & Rubber Mfg. Co., of Toronto, Ltd.
Hardman Rubber Co., Belleville, N. J.
Hodgman Rubber Co., New York.
La Crosse (Wis.) Rubber Mills Co.
Mattson Rubber Co., New York.
Mitzel Rubber Co., Akron, O.
Plymouth Rubber Co., Stoughton, Mass
Tyer Rubber Co., Andover, Mass.

"Nubian" Packing.

Voorhees Rubber Mfg. Co., Jersey City.

Oil Well Supplies.

Boston Belting Co., Boston-New York.
Boston Woven Hose & Rubber Co.
B. F. Goodrich Co., Akron, O.
Gutta Percha & Rubber Mfg. Co., N. Y.
The Gutta Percha & Rubber Mfg. Co., of Toronto, Ltd.
Home Rubber Co., Trenton, N. J.
Lake Shore Rubber Co., Erie, Pa.
N. J. Car Spring & Rubber Co., Jersey City.
Peerless Rubber Mfg. Co., New York.
Republic Rubber Co., Youngstown, O.
Revere Rubber Co., Boston-Pittsburgh.
Voorhees Rubber Mfg. Co., Jersey City.

Paper Machine Rollers.

Boston Belting Co., Boston-New York
B. F. Goodrich Co., Akron, O.
Gutta Percha & Rubber Mfg. Co., N. Y.
Republic Rubber Co., Youngstown, O.
Revere Rubber Co., Boston-New York.
Peerless Rubber Mfg. Co., New York.
Voorhees Rubber Mfg. Co., Jersey City

Plumbers' Supplies.

Canadian Rubber Co. of Montreal.
B. F. Goodrich Co., Akron, O.
The Gutta Percha & Rubber Mfg. Co., of Toronto, Ltd.
Republic Rubber Co., Youngstown, O.

Pump Valves.

[*See Mechanical Rubber Goods.*]

The Gutta Percha & Rubber Mfg. Co., of Toronto, Ltd.
Jenkins Bros., New York.
Revere Rubber Co., Boston, Mass.

Rollers—Rubber Covered.

Boston Belting Co., Boston.
Canadian Rubber Co. of Montreal.
Cleveland Rubber Co., Cleveland, O.
Empire Rubber Mfg. Co., Trenton, N. J.
Eureka Rubber Mfg. Co. of Trenton.
B. F. Goodrich Co., Akron, O.
Gutta Percha & Rubber Mfg. Co., N. Y.
The Gutta Percha & Rubber Mfg. Co., of Toronto, Ltd.
Home Rubber Co., Trenton, N. J.
Manhattan Rubber Mfg. Co., New York.
Mechanical Rubber Co., Chicago.
N. J. Car Spring & Rubber Co., Jersey City, N. J.
New York Belting & Packing Co., N. Y.
Peerless Rubber Mfg. Co., New York.
Plymouth Rubber Co., Stoughton, Mass.
Republic Rubber Co., Youngstown, O.
Revere Rubber Co., Boston New York.

Sewing Machine Rubbers.

B. F. Goodrich Co., Akron, O.

Springs—Rubber.

Boston Belting Co., Boston-New York.
Canadian Rubber Co. of Montreal.
B. F. Goodrich Co., Akron, O.
Gutta Percha & Rubber Mfg. Co., N. Y.
The Gutta Percha & Rubber Mfg. Co., of Toronto, Ltd.
Hardman Rubber Co., Belleville, N. J.
National India Rubber Co., Bristol, R. I.
N. J. Car Spring & Rubber Co., Jersey City.
Peerless Rubber Mfg. Co., New York.
Plymouth Rubber Co., Stoughton, Mass.
Republic Rubber Co., Youngstown, Ohio.
Revere Rubber Co., Boston-New York.
Voorhees Rubber Mfg. Co., Jersey City.

Stair Treads.

Boston Belting Co., Boston-New York.
Boston Woven Hose & Rubber Co.
Canadian Rubber Co. of Montreal.
Cleveland Rubber Co., Cleveland, O.
Empire Rubber Mfg. Co., Trenton, N. J.
B. F. Goodrich Co., Akron, O.
Gutta Percha & Rubber Mfg. Co., N. Y.
The Gutta Percha & Rubber Mfg. Co., of Toronto, Ltd.
Home Rubber Co., Trenton, N. J.
Manhattan Rubber Mfg. Co., New York
National India Rubber Co., Bristol, R. I.
N. J. Car Spring & Rubber Co., Jersey City, N. J.
New York Belting & Packing Co., N. Y.
New York Rubber Co., New York.
Peerless Rubber Mfg. Co New York.
Republic Rubber Co., Youngstown, O.
Revere Rubber Co., Boston-New York.
Voorhees Rubber Mfg. Co., Jersey City.

Thread.

B. F. Goodrich Co., Akron, O.
Mechanical Fabric Co., Providence, R. I.
Revere Rubber Co., Boston.

Tiling.

Anchor Tile Co., Trenton, N. J.
Canadian Rubber Co. of Montreal, Ltd.
B. F. Goodrich Co , Akron, O.
Gutta Percha & Rubber Mfg. Co., N. Y.
The Gutta Percha & Rubber Mfg. Co., of Toronto, Ltd.
N. J. Car Spring & Rubber Co., Jersey City.
New York Belting & Packing Co., N. Y.
Peerless Rubber Mfg. Co., New York.
Republic Rubber Co., Youngstown, Ohio.
Voorhees Rubber Mfg. Co., Jersey City.

Tubing.

See Mechanical Rubber Goods.]

American Hard Rubber Co., New York.
Davidson Rubber Co., Boston.
Davol Rubber Co., Providence, R. I.
The Gutta Percha & Rubber Mfg. Co., of Toronto, Ltd.
Hardman Rubber Co., Belleville, N. J.
Plymouth Rubber Co., Stoughton, Mass.
Tyer Rubber Co., Andover, Mass.

Valve Balls.

Boston Belting Co., Boston.
Cleveland Rubber Co., Cleveland, O.
B. F. Goodrich Co., Akron, O.
Jenkins Bros., New York.
Manhattan Rubber Mfg. Co., New York.
Mechanical Rubber Co., Chicago.
National India Rubber Co., Bristol, R. I.

RUBBER BUYERS' DIRECTORY—CONTINUED.

Valve Balls.—Continued.

New York Belting & Packing Co., N. Y.
New York Rubber Co., New York.
Peerless Rubber Mfg. Co., New York.
Republic Rubber Co., Youngstown, O.
Revere Rubber Co., Boston.

Valve Discs.

American Hard Rubber Co., New York
Boston Belting Co., Boston-New York.
B. F. Goodrich Co., Akron, O.
Jenkins Bros., New York.
Peerless Rubber Mfg. Co., New York
Republic Rubber Co., Youngstown, O.

Valves.

[See Mechanical Rubber Goods.]

The Gutta Percha & Rubber Mfg. Co. of Toronto, Ltd.
Jenkins Bros., New York-Chicago.

Vulcanite Emery Wheels.

Manhattan Rubber Mfg. Co., Passaic N. J.
New York Belting & Packing Co. Ltd New York.

Wringer Rolls.

Canadian Rubber Co. of Montreal.
Cleveland Rubber Co., Cleveland, O.
B. F. Goodrich Co., Akron, O.
The Gutta Percha & Rubber Mfg. Co. of Toronto, Ltd.
Home Rubber Co., Trenton, N. J.
Republic Rubber Co., Youngstown, O

DRUGGISTS' AND STATIONERS' SUNDRIES

Atomizers.

Bandages.

Bulbs.

Syringes.

Water Bottles.

Druggists' Sundries—General.

American Hard Rubber Co., New York.
C. J. Bailey & Co., Boston.
Boston Woven Hose & Rubber Co.
Canadian Rubber Co. of Montreal.
Cleveland Rubber Co., Cleveland, O.
Davidson Rubber Co., Boston.
Davol Rubber Co., Providence, R. I.
Est. of Jos. Bacharach, Brooklyn, N. Y
Faultless Rubber Co., Akron, O.
B. F. Goodrich Co., Akron, O.
Hardman Rubber Co., Belleville, N. J.
Hodgman Rubber Co., New York
Mitzel Rubber Co., Akron, O.
National India Rubber Co., Bristol, R. I.
North British Rubber Co., Ltd., Edinburgh.
Pirelli & Co., Milan, Italy.
Seamless Rubber Co., New Haven, Ct.
Tyer Rubber Co., Andover, Mass

Balls, Dolls and Toys.

New York Rubber Co., New York.

Combs.

American Hard Rubber Co., New York

Elastic Bands.

Canadian Rubber Co. of Montreal.
Cleveland Rubber Co., Cleveland, Ohio.
Davidson Rubber Co., Boston.
Davol Rubber Co., Providence, R. I.
B. F. Goodrich Co., Akron, O.
Hodgman Rubber Co., New York-Boston.
Tyer Rubber Co., Andover, Mass.

Erasive Rubbers.

Davidson Rubber Co., Boston.
B. F. Goodrich Co., Akron, O.
Hardman Rubber Co., Belleville, N. J.
Mattson Rubber Co., New York.

Finger Cots.

Cleveland Rubber Co., Cleveland, Ohio.
Faultless Rubber Mfg. Co., Akron, O.
B. F. Goodrich Co., Akron, O.
Pure Gum Specialty Co., Barberton, O.

Gloves.

Canadian Rubber Co. of Montreal.
Davol Rubber Co., Providence, R. I.
Faultless Rubber Co., Akron, O.
B. F. Goodrich Co., Akron, O.

Gloves—Continued.

National India Rubber Co., Bristol, R. I.
Pure Gum Specialty Co., Barberton, O.

Hard Rubber Goods.

American Hard Rubber Co., New York.
Canadian Rubber Co. of Montreal.
Davol Rubber Co., Providence, R. I.
Hardman Rubber Co., Belleville, N. J.
Stokes Rubber Co., Joseph, Trenton, N. J.
Tyer Rubber Co., Andover, Mass.

Hospital Sheetings.

Cleveland Rubber Co., Cleveland, O.
Davidson Rubber Co., Boston.
Davol Rubber Co., Providence, R. I.
B. F. Goodrich Co., Akron, O.
Hodgman Rubber Co., New York.
National India Rubber Co., Bristol, R. I.
Plymouth Rubber Co., Stoughton, Mass.
Tyer Rubber Co., Andover, Mass.

Ice Bags and Ice Caps.

Est. of Jos. Bacharach, Brooklyn, N. Y.
Cleveland Rubber Co., Cleveland, Ohio
Faultless Rubber Co., Akron, Ohio.
B. F. Goodrich Co., Akron, O.
Hardman Rubber Co., Belleville, N. J.
National India Rubber Co., Bristol, R. I
Pure Gum Specialty Co., Barberton, O
Tyer Rubber Co., Andover, Mass.

Life Preservers.

Hodgman Rubber Co., New York.
National India Rubber Co., Bristol, R. I

Nipples.

Canadian Rubber Co. of Montreal.
Cleveland Rubber Co., Cleveland, O.
Davidson Rubber Co., Boston.
Davol Rubber Co., Providence, R. I.
Faultless Rubber Co., Akron, O.
B. F. Goodrich Co., Akron, O.
Pure Gum Specialty Co., Barberton, O
Tyer Rubber Co., Andover, Mass.

Seamless Rubber Goods.

H. A. Kaysan, Cassel, Germany.

Shower Bath Sprinklers.

A. Schrader's Son, Inc., New York.

Sponges (Rubber).

Faultless Rubber Co., Ashland, Ohio.

Stationers' Sundries.

American Hard Rubber Co., New York.
Boston Woven Hose & Rubber Co.
Canadian Rubber Co. of Montreal.
Cincinnati Rubber Mfg. Co., Cincinnati O.
Cleveland Rubber Co., Cleveland, O.
Davidson Rubber Co., Boston.
Davol Rubber Co., Providence, R. I.
B. F. Goodrich Co., Akron, O.
Hardman Rubber Co., Belleville, N. J.
Hodgman Rubber Co., New York-Boston.
Seamless Rubber Co., New Haven, Ct.
Tyer Rubber Co., Andover, Mass

Stopples (Rubber).

Cleveland Rubber Co., Cleveland, O.
Davol Rubber Co., Providence, R. I.
Hodgman Rubber Co., New York.
Manhattan Rubber Mfg. Co., New York
National India Rubber Co., Bristol, R. I
New York Belting & Packing Co., N. Y
A. Schrader's Son, Inc., New York.
Tyer Rubber Co., Andover, Mass.

Throat Bags.

Cleveland Rubber Co., Cleveland, O.
Davol Rubber Co., Providence, R. I.
B. F. Goodrich Co., Akron, O.
National India Rubber Co., Bristol, R. I
Tyer Rubber Co., Andover, Mass.

Tobacco Pouches.

Canadian Rubber Co. of Montreal.
Faultless Rubber Co., Akron, Ohio.
B. F. Goodrich Co., Akron, O.
Pure Gum Specialty Co., Barberton, O
Tyer Rubber Co., Andover, Mass.

MACKINTOSHED AND SURFACE GOODS

Air Goods (Rubber).

Canadian Rubber Co. of Montreal.
Cleveland Rubber Co., Cleveland, O.
Davol Rubber Co., Providence, R. I.
B. F. Goodrich Co., Akron, O.
Hodgman Rubber Co., New York.

Air Goods (Rubber).—Continued.

New York Rubber Co., New York.
National India Rubber Co., Providence.
Tyer Rubber Co., Andover, Mass.

Air Mattresses.

Canadian Rubber Co. of Montreal.
Mechanical Fabric Co., Providence, R. I.
National India Rubber Co., Bristol, R. I

Barbers' Bibs.

Cleveland Rubber Co., Cleveland, Ohio.
Davol Rubber Co., Providence, R. I.
Tyer Rubber Co., Andover, Mass.

Bathing Caps.

Davol Rubber Co., Providence, R. I.
B. F. Goodrich Co., Akron, O.

Bellows Cloths.

Boston Rubber Co., Boston.
Cleveland Rubber Co., Cleveland, O.
Hodgman Rubber Co., New York.
La Crosse (Wis.) Rubber Mills Co.

Calendering.

La Crosse (Wis.) Rubber Mills Co.
Plymouth Rubber Co., Stoughton, Mass

Carriage Ducks and Drills.

Cleveland Rubber Co., Cleveland, O.
Empire Rubber Mfg. Co., Trenton, N. J
Eureka Rubber Mfg. Co. of Trenton.
Gutta Percha & Rubber Mfg. Co., Toronto.
National India Rubber Co., Bristol, R. I.

Clothing.

Canadian Rubber Co. of Montreal.
Cleveland Rubber Co., Cleveland, O.
Granby Rubber Co., Granby, Quebec.
Gutta Percha & Rubber Mfg. Co. of Toronto.
Hodgman Rubber Co., New York.
La Crosse (Wis.) Rubber Mills Co.
National India Rubber Co., Bristol, R. I.
North British Rubber Co., Ltd., Edinburgh.
Pirelli & Co., Milan, Italy.

Cravenette.

Cravenette Co., Ltd.

Diving Apparatus.

A. Schrader's Son, Inc., New York.

Diving Dresses.

Hodgman Rubber Co., New York.

Dress Shields.

Mattson Rubber Co., New York.

Horse Covers.

Hodgman Rubber Co., New York.
National India Rubber Co., Bristol, R. I.

Leggings.

Cleveland Rubber Co., Cleveland, O.
Hodgman Rubber Co., New York.
National India Rubber Co., Bristol, R. I.

Mackintoshes.

[See Clothing.]

Proofing.

Canadian Rubber Co. of Montreal.
La Crosse (Wis.) Rubber Mills Co.
Plymouth Rubber Co., Stoughton, Mass.

Rain Coats.

Cravenette Co., Ltd.

Rubber Coated Cloths.

Mechanical Fabric Co., Providence, R. I.

RUBBER FOOTWEAR

Boots and Shoes.

American Rubber Co., Boston.
Boston Rubber Shoe Co., Boston.
Canadian Rubber Co. of Montrea
L. Candee & Co., New Haven, Ct.
B. F. Goodrich Co., Akron, O.
Granby Rubber Co., Granby, Quebec.
Gutta Percha & Rubber Mfg. Co. of Toronto.
Hood Rubber Co., Boston.
Lycoming Rubber Co., Williamsport, Pa.
Meyer Rubber Co., New York.
National India Rubber Co., Boston.
North British Rubber Co., Ltd., Edinburgh.
United States Rubber Co., New York.
Wales-Goodyear Rubber Co., Boston.
Woonsocket Rubber Co., Providence.

Heels and Soles.

Boston Woven Hose & Rubber Co.
Canadian Rubber Co. of Montreal.
Continental Caoutchouc & Guttapercha Co., Hanover.
Grieb Rubber Co., Trenton, N. J.
The Gutta Percha & Rubber Mfg. Co., of Toronto, Ltd.
Plymouth Rubber Co., Stoughton, Mass

Tennis Shoes.

American Rubber Co., Boston.
Boston Rubber Shoe Co. Boston.
Granby Rubber Co., Granby, Quebec.
The Gutta Percha & Rubber Mfg. Co., of Toronto, Ltd.
La Crosse Rubber Mills Co., La Crosse, Wis.
National India Rubber Co., Providence
United States Rubber Co., New York.

Wading Pants.

Canadian Rubber Co. of Montreal.
Hodgman Rubber Co., New York.

DENTAL AND STAMP RUBBER

Dental Gum.

American Hard Rubber Co., New York.
Cleveland Rubber Co., Cleveland, O.
Tyer Rubber Co., Andover, Mass.

Rubber Dam.

Cleveland Rubber Co., Cleveland, O.
Davol Rubber Co., Providence, R. I.
B. F. Goodrich Co., Akron, O.
Hodgman Rubber Co., New York.
Tyer Rubber Co., Andover, Mass.

Stamp Gum.

B. F. Goodrich Co., Akron, O.
Mattson Rubber Co., New York.
Mechanical Rubber Co., Chicago, Ill.
N. J. Car Spring & Rubber Co., Jersey City, N. J.
New York Belting & Packing Co., N. Y.

ELECTRICAL

Electrical Supplies.

American Hard Rubber Co., New York
Lake Shore Rubber Co., Erie, Pa.
Joseph Stokes Rubber Co., Trenton, N. J.
Massachusetts Chemical Co., Boston.
Tyer Rubber Co., Andover, Mass.

Friction Tape.

Boston Belting Co., Boston.
Boston Woven Hose & Rubber Co
Canadian Rubber Co. of Montreal.
Cleveland Rubber Co., Cleveland, O.
B. F. Goodrich Rubber Co., Akron, O
Home Rubber Co., Trenton, N. J.
Massachusetts Chemical Co., Boston.
Mechanical Rubber Co., Chicago.
National India Rubber Co., Bristol, R. I.
Revere Rubber Co., Boston-New York.

Hard Rubber Goods.

American Hard Rubber Co., New York.
Canadian Rubber Co. of Montreal.
Joseph Stokes Rubber Co., Trenton, N. J

Insulating Compounds.

Canadian Rubber Co. of Montreal.
Gutta-Percha & Rubber Mfg. Co., Toronto.
Massachusetts Chemical Co., Boston.

Insulated Wire and Cables.

National India Rubber Co., Providence

Splicing Compound.

Home Rubber Co., Trenton, N. J.

SPORTING GOODS

Foot Balls.

Canadian Rubber Co. of Montreal.
Cleveland Rubber Co., Cleveland, O.
Faultless Rubber Co., Akron, Ohio.
B. F. Goodrich Co., Akron, O.
Hodgman Rubber Co., New York
National India Rubber Co., Bristol, R. I.

Golf Balls.

Boston Belting Co., Boston.
Canadian Rubber Co. of Montreal.
Davidson Rubber Co., Boston.
B. F. Goodrich Co., Akron, O.
The Gutta Percha & Rubber Mfg. Co., of Toronto, Ltd.

RUBBER BUYERS' DIRECTORY—CONTINUED.

Sporting Goods.

Canadian Rubber Co. of Montreal.
Faultless Rubber Co., Akron, Ohio.
B. F. Goodrich Co., Akron, O.
Hodgman Rubber Co., New York.
Tyer Rubber Co., Andover, Mass.

Striking Bags.

Canadian Rubber Co. of Montreal.
Cleveland Rubber Co., Cleveland, Ohio.
Faultless Rubber Co., Akron, Ohio.
B. F. Goodrich Co., Akron, O.
Pure Gum Specialty Co., Barberton, O.

Submarine Outfits.

Hodgman Rubber Co., New York.

MISCELLANEOUS

Boiler Specialist.

H. W. Jones, New York.

Cement (Rubber).

Boston Belting Co., Boston.
Canadian Rubber Co. of Montreal.
B. F. Goodrich Co., Akron, O.

Cement (Rubber).—Continued.

Hadley Cement Co., Lynn, Mass.
Manhattan Rubber Mfg. Co., New York
N. J. Car Spring & Rubber Co., Jersey City, N. J.
New York Belting & Packing Co., N. Y.

Chemical Analyses.

Durand Woodman, Ph.D., New York.
H. L. Terry, Manchester, England.

Chemists.

Stephen P. Sharples, Boston, Mass.
Durand Woodman, Ph. D., New York

Engraver.

P. C. Smith, Boston, Mass.

Rubber Journals.

Gummi-Zeitung, Dresden, Germany.

Rubber Planting.

Ohio Rubber Culture Co., Canton Ohio.

Rubber Tree Seeds.

J. P. William & Bros., Hereratgoda, Ceylon.

MACHINERY AND SUPPLIES FOR RUBBER MILLS.

RUBBER MACHINERY

Acid Tanks.

Birmingham Iron Foundry, Derby, Ct.

Band Cutting Machine.

A. Adamson, Akron, O.
Alton Machine Co., New York.
Birmingham Iron Foundry, Derby, Ct.

Belt Folding Machines.

Birmingham Iron Foundry, Derby, Ct.
Farrel Foundry & Mach. Co., Ansonia, Ct.

Belt Slitters.
Cloth Dryers.
Gearing.
Shafting.
Wrapping Machines.

Alton Machine Co., New York.
Birmingham Iron Foundry, Derby, Ct.
Farrel Foundry & Mach. Co., Ansonia, Ct

Belt Stretchers.

Alton Machine Co., New York.
Birmingham Iron Foundry, Derby, Ct.
Farrel Foundry & Mach. Co., Ansonia, Ct
Hoggson & Pettis Mfg. Co., New Haven.

Boilers.

William R. Thropp, Trenton, N. J.
John E. Thropp & Sons Co., Trenton, N. J.

Braiders.

New England Butt Co., Providence, R. I.
Textile Machine Works, Reading, Pa.

Buckles.

The Weld Mfg. Co., Boston.

Cabling Machinery.

Alton Machine Co., New York.

Calenders.

Alton Machine Co., New York.
Birmingham Iron Foundry, Derby, Ct.
Farrel Foundry & Mach. Co., Ansonia, Ct.
Textile-Finishing Machinery Co., Providence, R. I.
Textile Machine Works, Reading, Pa.

Castings.

A. Adamson, Akron, O.
Birmingham Iron Foundry, Derby, Ct.
Farrel Foundry & Mach Co., Ansonia, Ct

Chucks (Lathe).

Hoggson & Pettis Mfg. Co., New Haven

Churns.

American Tool & Machine Co., Boston

Clutches.

Farrel Foundry & Mach. Co., Ansonia, Ct

Crackers.

Alton Machine Co., New York.
Birmingham Iron Foundry, Derby, Ct.

Devulcanizers.

Alton Machine Co., New York.
Biggs Boiler Works Co., Akron, Ohio.
Birmingham Iron Foundry, Derby, Ct.
Edred W. Clark, Hartford, Ct.
William R. Thropp, Trenton, N. J.

Dies.

John J. Adams, Worcester, Mass.
Barbour Bros., Trenton, N. J.
T. J. Beaudry, Marlboro, Mass.
Brockton Die Co., Brockton, Mass.
J. W. Deewes, Philadelphia, Pa.

Dies.—Continued.

Hoggson & Pettis Mfg. Co., New Haven.
Independent Die Co., Brockton, Mass.
Joseph E. Knox & Co., Lynn, Mass.

Doubling Machines.

American Tool & Machine Co., Boston.

Drying Apparatus.

American Process Co., New York.

Drying Machines.

Alton Machine Co., New York.
Joseph P. Devine, Buffalo, N. Y.
Birmingham Iron Foundry, Derby, Ct.
Textile-Finishing Machinery Co., Providence, R. I.

Embossing Calenders.

Textile-Finishing Machinery Co., Providence, R. I.

Engines, Steam.

Alton Machine Co., New York.
William R. Thropp, Trenton, N. J.
John E. Thropp & Sons Co., Trenton N. J.

Engraving Roll.

Hoggson & Pettis Mfg. Co., New Haven

Grinders and Mixers.

Alton Machine Co., New York.
Birmingham Iron Foundry, Derby, Ct.
Farrel Foundry & Mach. Co., Ansonia, Ct
William R. Thropp, Trenton, N. J.

Hangers.

Farrel Foundry & Mach. Co., Ansonia, Ct

Hose Machines.

A. Adamson, Akron, Ohio.
Alton Machine Co., New York.
Birmingham Iron Foundry, Derby, Ct.
New England Butt Co., Providence, R. I.

Hydraulic Accumulators.

Birmingham Iron Foundry, Derby, Ct.
Farrel Foundry & Mach. Co., Ansonia, Ct

Hydraulic Machinery.
Insulating Machinery.

Textile Machine Works, Reading, Pa.

Iron Castings.

Alton Machine Co., New York.

Lasts (Rubber Shoe).

Middlesex Last Co., Boston.

Lathes—Hard Rubber.

A. Adamson, Akron, Ohio.

Lathes—Jar Ring.

A. Adamson, Akron, Ohio.
Alton Machine Co., New York.
Birmingham Iron Foundry, Derby, Ct
William R. Thropp, Trenton, N. J.

Machinists' Tools.

Hoggson & Pettis Mfg. Co., New Haven.

Moulds.

A. Adamson, Akron, Ohio.
Alton Machine Co., New York.
W. E. Arnold, Malden, Mass.
Barbour Bros., Trenton, N. J.
Birmingham Iron Foundry, Derby, Ct.
J. W. Dewees, Philadelphia, Pa.
Hoggson & Pettis Mfg. Co., New Haven

Pillow Blocks.

Farrel Foundry & Mach. Co., Ansonia, Ct

Presses (for Rubber Work.)

A. Adamson, Akron, O.
Alton Machine Co., New York.
Bay State Machine Co., Erie, Pa.
Birmingham Iron Foundry, Derby, Ct.
Boomer & Boschert Press Co., Syracuse N. Y.
Edred W. Clark, Hartford, Ct.
Farrel Foundry & Mach. Co., Ansonia, Ct
William R. Thropp, Trenton, N. J.

Pumps.

Alton Machine Co., New York.
Birmingham Iron Foundry, Derby, Ct.
Boomer & Boschert Press Co., Syracuse.
Farrel Foundry & Mach. Co., Ansonia, Ct

Racks for Boot and Shoe Cars.

Hoggson & Pettis Mfg. Co., New Haven

Reducing Valves.

Mason Regulator Co., Boston.

Rollers (Hand).

Hoggson & Pettis Mfg. Co., New Haven.

Rubber Covering Machines.

Alton Machine Co., New York.
New England Butt Co., Providence, R. I.

Rubber Growers' Utensils.

CEMENT CANS AND TANKS.

American Can Co., New York.

REPAIRING KIT BOXES.

American Can Co., New York.

Separators.

Turner, Vaughn & Taylor Co., Cuyahoga Falls, Ohio.

Separators for Reclaimed Rubber.

American Process Co., New York.

Special Rubber Machinery.

Alton Machine Co., New York.
Wellman Sole Cutting Machine Co Medford, Mass.

Spreaders.

Alton Machine Co., New York.
American Tool & Machine Co., Boston
Birmingham Iron Foundry, Derby, Ct.
New England Butt Co., Providence, R. I.

Steam Traps and Specialties.

Jenkins Bros., New York.
Mason Regulator Co., Boston.
Osgood Sayen, Philadelphia, Pa.

Steel Stamps.

Hoggson & Pettis Mfg. Co., New Haven.

Stitchers (Hand).

Hoggson & Pettis Mfg. Co., New Haven

Strip Covering Machines.
Strip Cutters.

Alton Machine Co., New York.
New England Butt Co., Providence, R. I.

Tire Molds.

Bay State Machine Co., Erie, Pa.

Tubing Machines.

A. Adamson, Akron, O.
Alton Machine Co., New York.
Bay State Machine Co., Erie, Pa.
Edred W. Clark, Hartford, Ct.
John Royle & Sons, Paterson, N. J
Textile Machine Works, Reading, Pa.

Vacuum Drying Chambers

Alton Machine Co., New York.
Joseph P. Devine Co. Buffalo, N. Y.

Varnishing Machines.

Birmingham Iron Foundry, Derby Ct.

Vulcanizers.

Alton Machine Co., New York.
Biggs Boiler Works Co., Akron, Ohio.
Birmingham Iron Foundry, Derby, Ct.
Farrel Foundry & Mach. Co., Ansonia, Ct.
William R. Thropp, Trenton, N. J.
John E. Thropp's Sons Co., Trenton, N. J.

Washers.

Alton Machine Co., New York.
Birmingham Iron Foundry, Derby, Ct.
Farrel Foundry & Mach. Co., Ansonia, Ct.
William R. Thropp, Trenton, N. J
Turner, Vaughn & Taylor Co., Cuyahoga Falls, Ohio.

Wire Insulating Machines.

Alton Machine Co., New York.
New England Butt Co., Providence, R. I.

Wire Rope Machinery.

Alton Machine Co., New York.

SECOND-HAND MACHINERY.

Philip Broomfield, Boston, Mass.
W. C. Coleman Co., Rochelle Park, N. J
Philip McGrory, Trenton N. J.
M. Norton & Co., Charlestown, Mass.

FACTORY SUPPLIES

Acid (Carbolic).

Barrett Mfg. Co., Philadelphia.

Antimony, Sulphurets of.

GOLDEN.

Actien-Ges. Georg Egestorff's Salzwerke, Linden, Germany.
Atlas Chemical Co., Newtonville, Mass.

GOLDEN AND CRIMSON.

Joseph Cantor, New York.
Geo. F. Lufbery, Jr., Elizabeth, N. J.
Wm. H. Scheel, New York.
Stamford (Conn.) Rubber Supply Co.
Typke & King, London, England.

Balata.

George A. Alden & Co., Boston.

Benzol.

Barrett Mfg. Co., Philadelphia.
Samuel Cabot, Boston.

Black Hypo.

Joseph Cantor, New York.
William H. Scheel, New York.
Typke & King, London, England.

Boxes (Wood).

Henry H. Sheip & Co., Philadelphia.

Brass Fittings.

A. Schrader's Son, Inc., New York.

Carbon Bisulphide.

George W. Speaight, New York.

Caustic Soda.

Acker Process Co., Niagara Falls, N. Y.

Chemicals.

Acker Process Co., Niagara Falls, N. Y.
George W. Speiaght, New York.
S. P. Wetherill Co., Philadelphia, Pa.

Colors.

Joseph Cantor, New York.
William H. Scheel, New York.
Typke & King, London, England.
S. P. Wetherill Co., Philadelphia, Pa.

MACHINERY AND SUPPLIES FOR RUBBER MILLS—CONTINUED.

Crude Rubber.
George A. Alden & Co., Boston.
A. W. Brunn & Co., New York.
Hagemeyer & Brunn, New York.
Adolph Hirsch & Co., New York.
F. R. Miller & Co., New York.
Para Recovery Co., Bayonne, N. J.
Rubber Trading Co., New York-Boston.

Dermatine.
The Dermatine Co., London.

Ducks and Drills (Cotton).
J. H. Lane & Co., New York.

Gilsonite.
William H. Scheel, New York.

Graphite.
United States Graphite Co., Philadelphia.

Graphite Grease.
Jos. Dixon Crucible Co., Jersey City.

Guayule Rubber.
Continentol Rubber Co.
Ed. Maurer, New York.

Gutta-Percha.
George A. Alden & Co., Boston.
Rubber Trading Co., New York-Boston

Hose Bands, Straps & Menders.
Boston Woven Hose & Rubber Co.
William Yerdon, Fort Plain, N. Y.

Hose Pipes, Nozzles & Couplings.
Boston Woven Hose & Rubber Co.
Eureka Fire Hose Co., New York.
Revere Rubber Co., Boston.
A. Schrader's Son, Inc., New York.

Hydro-Carbon Products.
Geo. A. Alden & Co., Boston.
William H. Scheel, New York.

Infusorial Earth.
Stamford (Conn.) Rubber Supply Co.

Lampblack.
Samuel Cabot, Boston.

Lawn-Hose Supporters.
C. J. Bailey & Co., Boston.

Lead—Blue.

Lead—Sublimed White.
Picher Lead Co., Chicago, Ill.

Lithopone.
Gabriel & Schall, New York.

Naphtha.
Barrett Mfg. Co., Philadelphia.

Paris White and Whiting.
H. F. Taintor Mfg. Co., New York.

Reclaimed Rubber.
Alkali Rubber Co., Akron, Ohio.
American Reclaimed Rubber Co., Rochelle Park, N. J.
F. H. Appleton & Son, Boston.
Bloomingdale (N. J.) Soft Rubber Co.
E. H. Clapp Rubber Co., Boston, Mass.
Danversport Rubber Co., Boston.
Derby Rubber Co., Derby, Conn.
Eastern Rubber Co., New York.
Trenton (N. J.) Rubber Reclaiming Works.
Manufactured Rubber Co.
New Jersey Rubber Co., Lambertville, N. J.
Pequanoc Rubber Co., Butler, N. J.

Reclaimed Rubber.—Continued.
Philadelphia Rubber Wks., Philadelphia.
Stockton Rubber Co., Stockton, N. J.
Jos. Stokes Rubber Co., Trenton, N. J.
S. & L. Rubber Co., Chester, Pa.
U. S. Rubber Reclaiming Wks., N. Y.
Westmoreland Rubber Mfg. Co., Grapeville, Pa.

AGENTS AND DEALERS.
Goldberg & Rathman, Boston, Mass.
Philip McGrory, Trenton, N. J.
H. P. Moorhouse, Paris, France.
Rubber Trading Co., New York-Boston.
Wm. Somerville's Sons, Liverpool.

Rubber Substitute.
C. M. Cubberly, Trenton, N. J.

Scrap Rubber.
L. Albert & Son, Trenton, N. J.
Bers & Co., Philadelphia.
P. Broomfield & Co., Boston.
C. Clifford, Baltimore, Md.
W. C. Coleman Co., Rochelle Park, N. J.
Wm. H. Cummings & Sons, New York.
Goldberg & Rathman, Boston, Mass.
Theodore Hofeller & Co., Buffalo, N. Y.
A. W. Leslie & Co., Ltd., London, Eng.
B. Loewenthal & Co., New York and Chicago.
J. Loewenthal & Sons, Chicago.
Philip McGrory, Trenton, N. J.
Meyer Bros., Philadelphia, Pa.
Trenton (N. J.) Rubber Reclaiming Works.
M. Norton & Co., Charlestown, Mass.
San Giacomo Sons, Newark, N. J.
J. Schnurmann, London.
Schwab & Co., Philadelphia.

Scrap Rubber.—Continued.
United States Waste Rubber Co., Brockton, Mass.
M. J. Wolpert, Odessa, Russia.

Substitute.
Joseph Cantor, New York
Geo. F. Lufbery, Jr., Elizabeth, N. J.
Massachusetts Chemical Co., Boston.
Wm. H. Scheel, New York.
Stamford (Conn.) Rubber Supply Co.
Typke & King, London, England.

Sulphur.
Battelle & Renwick, New York.
T. & S. C. White Co., New York.

Sulphur Chloride.
Acker Process Co., Niagara Falls, N. Y.
William H. Scheel, New York.
George W. Spealght, New York.
Stamford (Conn.) Rubber Supply Co.

Tire Fabrics.
J. H. Lane & Co., New York.

Tire Valves.
A. Schrader's Son, Inc., New York.

Valves for Air Goods.
A. Schrader's Son., Inc., New York.

Wooden Shells.
Adolph Martin, Passaic, N. J.

Zinc Sulphide.
Joseph Cantor, New York.
Typke & King, London, England

Zinc White.
New Jersey Zinc Co., New York.
Stamford (Conn.) Rubber Supply Co

BUYERS' DIRECTORY
—FOR—
Rubber Tires and Accessories.

Auto Top Fabrics.
Chase & Co., L. C., Boston, Mass.
Hodgman Rubber Co., New York.
Mutty & Co., L. J., Boston, Mass.
National India Rubber Co., Bristol, R. I

Cases, Tire.
Gilbert Mfg. Co., New Haven, Conn.

Covers, Tire.
Wiley & Son Co., Wm. H., Hartford, Conn.

Fabrics.
Chase & Co., L. C., Boston, Mass.
Lane & Co., J. H., New York.
Mutty & Co., L. J., Boston, Mass.
National India Rubber Co., Bristol, R. I.

Flanges and Rings.
The A. Dewes Co., New York.

Insulated Wires.
Clark Insulation Co., Boston, Mass.
National India Rubber Co., Bristol, R. I.

Mats, Automobile.
Boston Woven Hose & Rubber Co., Cambridge, Mass.
The Gutta Percha & Rubber Mfg. Co., of Toronto Ltd
Manhattan Rubber Mfg. Co., New York.
National India Rubber Co., Bristol, R. I.
Revere Rubber Co., Boston, Mass.

Pumps, Tire.
Pacific Tucking & Mfg. Co., Brooklyn, N. Y.

Repair Stock.
Trenton Rubber Mfg. Co., Trenton, N. J.

Rims, Wheel.
Hartford Rubber Works Co., Hartford, Conn.
Goodrich Co., B. F., Akron, Ohio
Goodyear Tire & Rubber Co., Akron, Ohio.

Tires.
Bailey & Co., C. J., Boston, Mass.
Canadian Rubber Co. of Montreal, Ltd.
Continental Caoutchouc Co., New York.
Consolidated Rubber Tire Co., New York—Akron, Ohio.
Diamond Rubber Co., Akron, Ohio.
Dunlop Tire & Rubber Goods Co., Toronto.
Electric Rubber Mfg. Co., Rutherford, N. J.
Empire Rubber Mfg. Co., Trenton, N. J.
Firestone Tire & Rubber Co., Akron, Ohio.
Fisk Rubber Co., Chicopee Falls, Mass
F. W. Skinner, Advance Tire Co., Valley Falls, R. I.
G. & J. Tire Co., Indianapolis, Ind.
Goodrich Co., B. F., Akron, Ohio.
Gutta Percha & Rubber Mfg. Co, Toronto.
Harburg Tire Co, Harburg, Germany.
Harburg-Vienna India Rubber Co, Harburg, Germany.
Hartford Rubber Works Co., Hartford, Conn.
Healy Leather Tire Co., New York.
Indiana Rubber & Insulated Wire Co., Jonesboro, Ind.
International A. & V. Tire Co., Milltown, N. J.
Kasner, A. H., New York.
Kokomo Rubber Co., Kokomo, Ind.
Lake Shore Rubber Co., Erie, Pa.
Michelin Products Selling Co, New York.
Michelin Tire American Agency, Inc., New York.
Mitchell Punctureless Pneumatic Tire Co., Swampscott, Mass.
Morgan & Wright, Chicago, Ill.
Motz Clincher Tire & Rubber Co., Akron, Ohio.
North British Rubber Co., Ltd., Edinburgh, Scotland.
Pirelli & Co., Milan Italy.
Plymouth Rubber Co., Stoughton, Mass
Republic Rubber Co., Youngstown, Ohio.
Sirdar Rubber Co, Ltd., London, England.
St. John Rubber Tire Co., Inc., New York.
Sweet Tire & Rubber Co., Batavia, N. Y.
Swinehart Clincher Tire & Rubber Co., Akron, Ohio.
Trenton Rubber Mfg. Co., Trenton, N. J.
United Berlin Frankfort India Rubber Co., Ltd., Berlin, Germany.
Universal Tire Co., N. Y.

AUTOMOBILE AND CARRIAGE.
Boston Belting Co., Boston-New York.
Eureka Rubber Mfg. Co., Trenton, N. J.
Revere Rubber Co., Boston-New York.

Tire Applying Machines.
Nelson & Le Moon, Chicago, Ill.

Tire Cases.
Gilbert Mfg. Co., New Haven, Conn.

Tire Covers.
Wiley & Son Co., Wm. H., Hartford, Conn

Tire Fabrics.
Lane & Co., J. H., New York.

Tire Pumps.
Pacific Tucking & Mfg. Co., Brooklyn, N. Y.

Tire Repairing.
Boston Vulcanizing Co., Boston, Mass.
Foote Rubber Co., D. E., Cleveland, Ohio.
Republic Rubber Tire & Shoe Co., New York.
Voorhees Rubber Mfg. Co., Jersey City, N. J.

Treads.
Boston Woven Hose & Rubber Co., Cambridge, Mass.
Leather Tire Goods Co., Newton Upper Falls, Mass.
Manhattan Rubber Mfg. Co., New York.
Revere Rubber Co., Boston, Mass.

Valves, Tire.
Schrader's Sons, Inc., A., New York.

Vulcanizer, Tire.
Auto Tire Vulcanizing Co., Lowell, Mass.

Wires, Insulated.
Clark Insulation Co., Boston, Mass.
National India Rubber Co., Bristol, R. I.